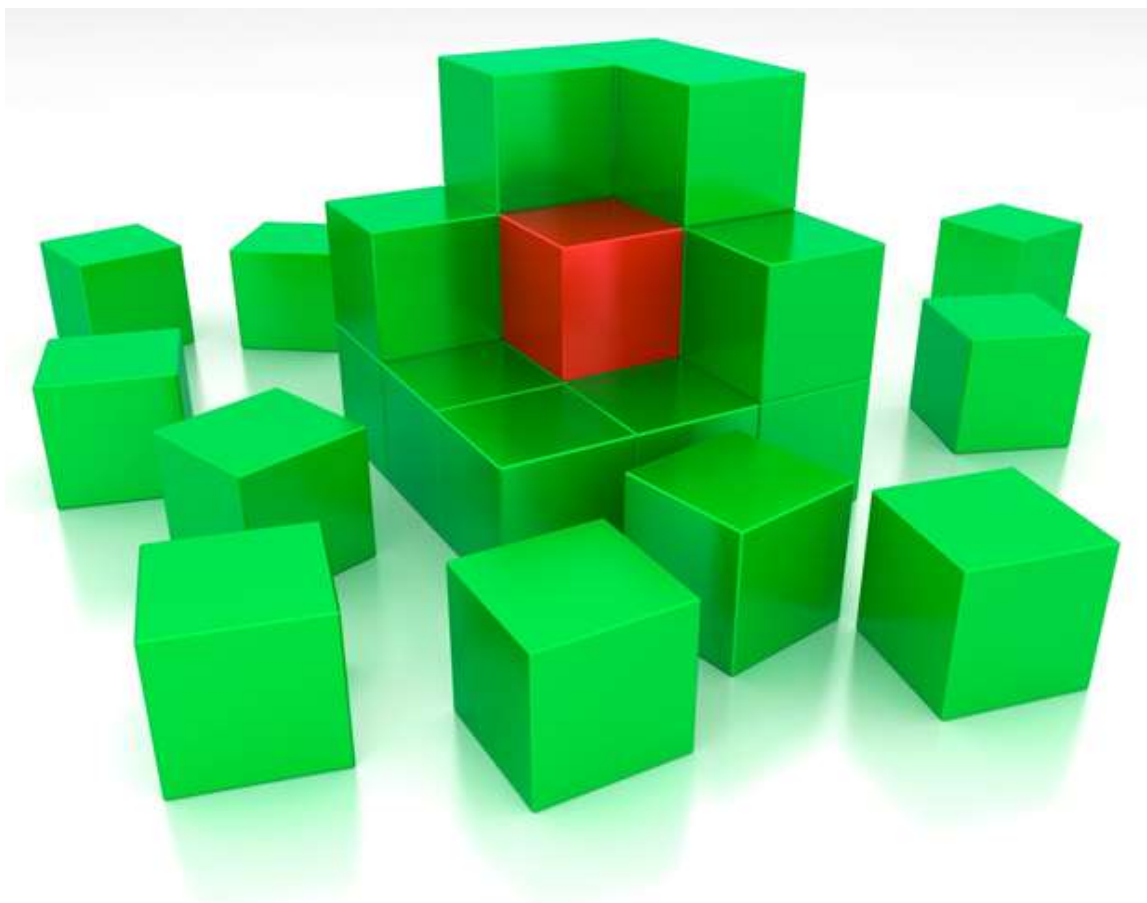




Sector Specific Inventory & Institutional Strengthening for PPP Mainstreaming

Directorate of Urban Land Transport

Pre-Feasibility Report for Development of Multi-Level Car Parking in Belgaum on PPP Basis



Submitted By
Deloitte Touche Tohmatsu India Private Limited

July 2012

ACRONYMS

BOOT	Build Own Operate Transfer
BOT	Build Operate Transfer
BUA	Built Up Area
CBD	Central Business District
CTTP	Comprehensive Traffic and Transportation Plan
DC	Divisional Commissioner
DLF	Delhi Leasing Finance
DTTIPL	Deloitte Touche Tohmatsu India Private Limited
DSCR	Debt Service Coverage Ratio
DULT	Directorate of Urban Land Transport
ECS	Equivalent Car Space
FAR	Floor Area Ratio
FOB	Foot Over Bridge
HINDALCO	Hindustan Aluminium Company
IDD	Infrastructure Development Department
INDAL	Indian Aluminium Industry
IRR	Internal Rate of Return
IT	Income Tax
KMC	Kolkata Municipal Corporation
KTPP	Karnataka Transparency in Public Procurement
KUIDFC	Karnataka Urban Infrastructure Development and Finance Corporation
LDA	Lucknow Development Authority
MLCP	Multi Level Car Parking
NH	National Highway
NUTP	National Urban Transport Policy
O & M	Operation & Maintenance
PPP	Public Private Partnership
R & D	Research and Development
RFP	Request for Proposal
ROW	Right of Way
SIAM	Society of Indian Automobile Manufacturers
SLM	Straight Line Method
SPM	Suspended Particulate Matter
TA	Transaction Advisor
TOR	Terms of Reference
ULB	Urban Local Body
WDV	Written Down Value

Disclaimer

This document is strictly private and confidential and has been prepared by Deloitte Touche Tohmatsu India Private Limited (“DTTIPL”) specifically for the Infrastructure Development Department, Government of Karnataka (“IDD”) and Directorate of Urban Land Transport, Government of Karnataka (“DULT”) for the purposes specified herein. The information and observations contained in this document are intended solely for the use and reliance of IDD and DULT, and are not to be used, circulated, quoted or otherwise referred to for any other purpose or relied upon without the express prior written permission of DTTIPL in each instance.

Deloitte has not verified independently all of the information contained in this report and the work performed by Deloitte is not in the nature of audit or investigation.

This document is limited to the matters expressly set forth herein and no comment is implied or may be inferred beyond matters expressly stated herein.

It is hereby clarified that in no event DTTIPL shall be responsible for any unauthorised use of this document, or be liable for any loss or damage, whether direct, indirect, or consequential, that may be suffered or incurred by any party.

Table of Contents

1	EXECUTIVE SUMMARY	1
2	INTRODUCTION	3
2.1	PROJECT IDEA	3
2.2	APPROACH & METHODOLOGY, STUDIES, SURVEYS INCLUDING DATA COLLECTION, ANALYSIS	3
3	SECTOR PROFILE	5
3.1	INDUSTRY OVERVIEW	5
3.2	REGIONAL PROFILE	5
3.3	KEY ISSUES BASED ON CTPP	6
4	PROJECT	7
4.1	DESCRIPTION OF THE PROJECT	7
4.2	COMPONENTS OF THE PROJECT	7
4.3	DESCRIPTION OF THE SITE	8
4.4	INTERACTION WITH STAKEHOLDERS	12
4.5	DEVELOPMENT NEEDS, PUBLIC NEEDS AND PLANNING CONSIDERATIONS	13
4.6	BEST CASE STUDIES FOR SIMILAR PROJECTS IN INDIA/ WORLD	13
4.7	STUDIES AND SURVEYS ALREADY AVAILABLE THAT MAY HAVE BEEN CONSIDERED.....	13
5	MARKET ASSESSMENT	14
5.1	INDUSTRY OUTLOOK	14
5.2	OPPORTUNITIES & DEMAND PROJECTIONS	14
6	PROJECT FINANCIALS	17
6.1	PROJECT DESIGN	17
6.2	COST ASSUMPTIONS	18
6.3	OTHER ASSUMPTIONS	19
6.4	TARIFF REVENUE STREAM	19
6.5	VIABILITY ASSESSMENT	20
6.6	FINANCIAL SUPPORT	20
6.7	SENSITIVITY ANALYSIS.....	21
7	STATUTORY & LEGAL FRAMEWORK	22
7.1	APPLICABLE POLICIES	22
7.2	LEGAL & REGULATORY FRAMEWORK.....	23
8	INDICATIVE ENVIRONMENTAL & SOCIAL IMPACTS	24
8.1	ENVIRONMENTAL IMPACTS.....	24
8.2	SOCIAL IMPACTS.....	24
9	OPERATING FRAMEWORK	26
9.1	BACKGROUND.....	26
9.2	INDICATIVE PROJECT STRUCTURING	26
9.3	RISKS AND MITIGATION	27
10	WAY AHEAD	28
10.1	PROJECT DEVELOPMENT FRAMEWORK	28
10.2	APPOINTMENT OF TECHNICAL CONSULTANT AND TRANSACTION ADVISOR.....	28
	ANNEXURES	29

ANNEXURE A: LIST OF STAKEHOLDERS MET	29
ANNEXURE B: CASE STUDIES FOR SIMILAR PROJECTS IN INDIA	30
ANNEXURE C: FINANCIAL SUMMARY	35
ANNEXURE D: SENSITIVITY ANALYSIS.....	42
ANNEXURE E: TERMS OF REFERENCE FOR ENGAGING TECHNICAL CONSULTANT	45
ANNEXURE F: TERMS OF REFERENCE FOR ENGAGING TRANSACTION ADVISOR	51

1 Executive Summary

- 1.1. The city of Belgaum is currently facing a parking shortage, especially at the city centre and along the College Road. Unorganized on-street parking is leading to major congestion and inadequate walkways for public. Moreover, on-street parking and encroachment is reducing road capacity and the scope to widen the streets.
- 1.2. This pre-feasibility report presents a preliminary analysis on the viability of developing multi-level car parking (MLCP) in Belgaum on PPP basis.
- 1.3. MLCP refers to a structure or building with multiple levels or floors designed to enable efficient and safe parking of vehicles. The mechanism enhances the on-ground parking capacity by vertical expansion rather than horizontal expansion.
- 1.4. MLCP infrastructure can be conventional as well as automated or robotic. The technology considered in this analysis is a ramp-based conventional form of parking characterized by multiple ramps leading to various floors.
- 1.5. Based on stakeholder consultations, the following three locations have been considered for developing MLCP in Belgaum on PPP basis:
 - Ramdev Galli
 - Sardar Ground
 - Laxmi Parking (Khanjar Galli)
- 1.6. Ramdev Galli is located in a busy commercial area at the central core of the city. The MLCP at Ramdev Galli would cater to the parking needs of Khade Bazaar and Bapat Galli areas. Khade Bazaar Galli is the main commercial hub of Belgaum. The site for the MLCP is the existing car parking lot on the Khade Bazaar Road. It spans an area of about 0.5 acre and falls under the Belgaum City Corporation. The current parking capacity here is 60 but stakeholder consultations indicate that the estimated peak parking demand in and around this area is more than 350 equivalent car spaces (ECS). Based on site considerations, demand and the Belgaum Comprehensive Traffic and Transportation Plan (CTTP), a MLCP for 100 ECS has been considered at this site for analysis.
- 1.7. The Sardar Ground site is the playground of Sardar High School. The plot is about 4 acres in area and is under the State Administrative control of the Divisional Commissioner. It is located along the College Road and the eastern side of this site is flanked by Government offices. There are also a few commercial hubs nearby. The general public, students and faculty members face major parking problems due to lack of area in comparison to the number of colleges, shops and offices located nearby. Stakeholder consultations indicate that the current parking demand at this location is more than 250 ECS. Based on site considerations, demand and the Belgaum CTTP, a MLCP for 287 ECS has been considered at this site for analysis.
- 1.8. The Laxmi Parking site is at Khanjar Galli which is located at the City Centre. The land coverage of this site is approximately 3 acres and is under the authority of the Belgaum City Corporation. Parking demand at Khanjar Galli is driven by the vehicles of shop owners and shoppers. Visitors and employees of the Government offices located nearby also contribute to the demand. Stakeholder consultations indicate that the current

parking demand at this location is more than 100 ECS. Based on site considerations, demand and the Belgaum CTTT, a MLCP for 100 ECS has been considered at this site for analysis.

- 1.9. The proposed MLCPs at the 3 locations have been analysed based on various metrics including Project IRR, Equity IRR and debt service coverage ratio (DSCR). Since the systems are not financially viable based on preliminary estimates, appropriate government support in the form of capital grant has been considered. The following results have been obtained in this analysis:

Particulars	Ramdev Galli	Sardar Ground	Laxmi Parking (Khanjar Galli)
Grant %	33.25%	31.50%	33.25%
Grant (Rs. Million)	11.18	30.23	11.18
Project IRR	10.21%	10.49%	10.21%
Equity IRR	15.00%	15.00%	15.00%
Average Debt service coverage ratio	1.25	1.25	1.25
Minimum Debt service coverage ratio	0.84	0.85	0.84
Total Project Cost (in Rs. million)	33.61	95.98	33.61

- 1.10. It is to be noted that the estimates of VGF / Grant provided in this report are based on certain assumptions and the same may vary after detailed studies. However, it provides indicative assessment of the funds required from Government / Agency for these MLCPs. Beyond this, it is recommended that Government / Agency may appoint Technical Consultant and Transaction Advisor for conducting detailed study and developing project structure, once Government / Agency has decided to go-ahead with these MLCPs and if sufficient funds can be allocated for these MLCPs.

2 Introduction

2.1 Project Idea

- 2.1.1 Each year India sells close to 8 lakh units of cars and the average growth rate of passenger car sales as projected by the Society of Indian Automobile Manufacturers (SIAM) is as high as 10-12 per cent over this fiscal while two-wheeler sales, which was at 134 lakh units in 2011-12, are expected to grow by 14.2 per cent.¹ In order to accommodate the large volume of vehicles, Indian cities and towns need to develop infrastructure - including provision for adequate parking facilities at areas with high vehicle densities and scarce parking space. Demand for car parking is not met by an equal supply in most residential or commercial complexes. One solution to meet this demand is the construction of multi-level car parking systems to maximize car parking capacity by expanding parking space vertically rather than horizontally as it exists in the case of most on-ground parking. This would be a multiplicative expansion of a horizontal area coverage, subject to development control norms, thus accommodating more vehicles.
- 2.1.2 Major parking problems are faced in the city of Belgaum owing to unavailability of parking spots, unmanned intersections with lack of signals and an increasing growth of traffic. As part of multitude governmental efforts to develop the transport infrastructure in the state of Karnataka, the Infrastructure Development Department (IDD), Government of Karnataka, along with the Directorate of Urban Land Transport (DULT), has engaged Deloitte Touche Tohmatsu India Pvt. Ltd to undertake pre-feasibility analysis for the development of multi-level car parkings at various locations in Belgaum on PPP basis.

2.2 Approach & Methodology, studies, surveys including Data collection, analysis

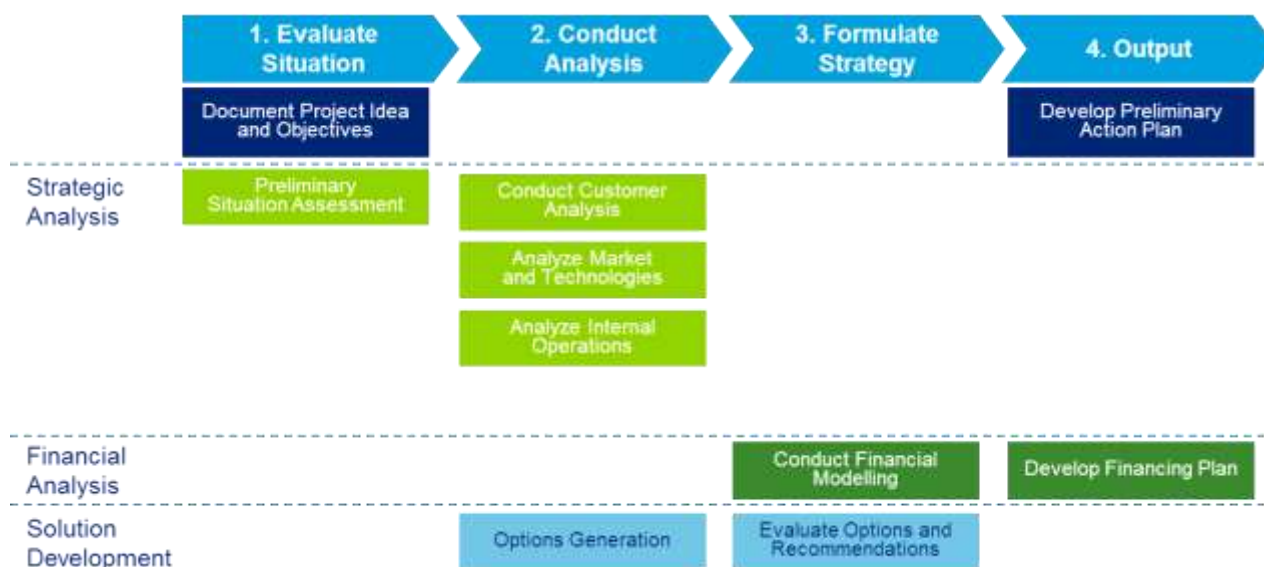
During the course of this pre-feasibility analysis, the following approach and methodology has been followed:

S. No.	Steps By Step Approach	Broad Methodology
1	Project Inception	Meetings with key officials of IDD, DULT, City Corporation and other stakeholders
2	Macro overview of Belgaum: Insights on demographic profile, connectivity & linkages, upcoming & planned developments.	Secondary research, discussions with the ULB
3	Location Analysis: Location and its zonal configuration and analysis, identification of potential	Site visits, press/document review, stakeholder interactions and secondary research

¹ <http://management-punditz.blogspot.in/2012/04/indian-automobile-statistics-fy-2012.html>

S. No.	Steps By Step Approach	Broad Methodology
	sites, connectivity, accessibility, upcoming & planned developments in the vicinity	
4	Market Assessment Assessing demand potential, identifying the revenue potential from parking and advertisements.	Secondary research and interactions with stakeholders
5	Facility Planning and the Base Project Cost Estimation	Based on the market data, broad technical specifications and stakeholder inputs
6	Development of Base Financial Model : Base project cost, options for revenue generation, assumptions on financial structuring	Discussion with stakeholders and market insights
7	Preliminary assessment of PPP options and Recommendation on Project Structuring	Based on financial analysis, sectoral PPP best practices and market insights

Methodology for conducting the pre-feasibility



3 Sector Profile

3.1 Industry Overview

- 3.1.1 As highlighted earlier, India is witnessing rapid growth in the number of vehicles on the roads which in turn is leading to traffic problems. This is due to the fact that the current supporting infrastructure facilities are unable to cope with the fast influx of vehicles on the road. The situation is worsened in areas with narrow roads. Therefore, there is a high incidence of problems such as traffic congestion and insufficient parking space.
- 3.1.2 In India, car parking is mainly characterized by parking along both sides of the road leading to pedestrian spills and traffic congestion. Most of the parking lots are off street and are auctioned by city corporations. The contractors are given fixed amount of land for enabling parking facilities at a nominal rate like Rs.10/hour. However, in the last few years, car parking systems have been improved to a certain extent by making provisions for underground parking. This involves multi-level ramp parking as well as multi-level automated parking.
- 3.1.3 The ramp system of car parking is a common system used in malls, multiplexes, residential and corporate buildings. It is prevalent in all the metros as well as in all major cities. However, the automated system of multi-level car parking is prevalent in only few cities.
- 3.1.4 Kolkata was among the first cities to have an automated multi-level car parking system. Kolkata Municipal Corporation (KMC) awarded the stretch of land along Lindsay Street to Simplex on a Build Own Operate Transfer (BOOT) basis to construct a multi-level car parking inclusive of a shopping complex. The project has a provision for 250 parking slots on Level 2 and 200 shops on lease on Level 1. It is understood that it takes approximately 90 seconds for parking vehicles or for retrieving them, after paying the parking fee of Rs.10 per hour through a computerized collection system.
- 3.1.5 Recently, Delhi inaugurated its first automated multi-level car parking lot at the Sarojini Nagar Market. The parking lot built at a cost of Rs 80 crore under a PPP scheme between New Delhi Municipal Council and DLF is known as 'South Square'. Similarly, another automated car parking facility is due to start on Baba Kharak Singh Marg, Delhi by July 2012. This facility is also being developed on PPP basis between the same parties as 'South Square'.
- 3.1.6 Presently, Belgaum has on street parking on most of the roads owing to the unorganized and inadequate availability of off-street parking. The current parking scenario of Belgaum is highlighted in Section 5 of this pre-feasibility report.

3.2 Regional Profile

- 3.2.1 Belgaum District is well known for its diverse cultural heritage, favourable agro-climatic conditions, industries, educational institutions and tourist spots. The district is bound by Bangalkot district in the east, the districts of Dharwad & Uttar Kannada on the south and states of Maharashtra & Goa on the west. It is well connected by air, road and rail. Belgaum district's population is 4,778,439 as per Census 2011 and covers an area of 13415 sq km. All these aspects have made Belgaum popular both as an industrial as

well as a tourist destination and lately have had a positive influence on the tourist population inflow into the city.

- 3.2.2 Belgaum city is the district headquarters of Belgaum district and is at a distance of 502 km from Bangalore. It is situated nearly 2,500 ft (762 m) above sea-level. Belgaum city geographically spreads over an area of 98.04 sq km. The local planning area covers around 182 sqkm.
- 3.2.3 Belgaum city is well-connected by road via the National Highway 4 (connecting Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu) and NH-4A (connecting Karnataka and Goa). Belgaum is situated on the main Indian Railways grid being part of Hubli-Division and is well connected by rail to major destinations such as Bangalore (via Hubli), Mumbai, Pune/Delhi (via Miraj) and Goa. Raichur- Bachi (SH-20) road cuts across Belgaum and connects the states of Andhra Pradesh and Maharashtra. The city also has a civilian Airport located at Sambra (about 7-8 km from the city).
- 3.2.4 Belgaum is the fourth largest city in the state of Karnataka after Bangalore, Mysore and Hubli-Dharwad. The district has rich deposits of bauxite which has led to establishment of INDAL (Indian Aluminum Company presently HINDALCO) at Belgaum. Belgaum is also known for its foundry clusters specialized in making machine tools, oil engines, electricity machinery and pump sets for automobile industry. These clusters are located in the Industrial estates of Udyambagh, Honga, Shinnoli and Angol Industrial Area/Estate. The location of the city right in between cities of Bangalore and Mumbai/Pune, the major automotive manufacturing hub, provides a distinct advantage. Belgaum city is also known for being a prime education center with two medical colleges, two dental colleges and three engineering colleges. The city is flanked by Vishweshwaraiah Technological University and a Post Graduate campus of Karnataka University and KLE education institutes. Belgaum also has a number of training centres of the Indian Armed Forces, and an air base of the Indian Air Force.

3.3 Key Issues based on CTPP

- 3.3.1 Parking demand in Belgaum is growing with fast growth of vehicles in the city. In this process, the congested CBD areas face acute parking problems due to inadequate parking infrastructure supply and also owing to the road infrastructure which is not wide enough to sustain on-street parking.
- 3.3.2 Few observations typical to the Belgaum CBD areas are:
- Large number of vehicles parked here are parked for long durations and generally belong to shop owners and their employees.
 - Though the building regulations specify a minimum provision of parking area, there exist many defaulters who later convert the spaces for other purposes and thus resulting in the vehicle parking spilling to streets.
 - This leaves very little space for the visitors to park their vehicles, thus resulting in spill over of parking in the bye lanes and restricted areas.
 - This further leads to unavailability of walking passages and even makes access to few shops difficult.
- 3.3.3 There is a need for adequate parking facilities with efficient management systems.

4 Project

4.1 Description of the Project

- 4.1.1 A multi-level car parking (MLCP) is a building (or part thereof) which is designed specifically to accommodate automobile parking and which is structured to have a number of floors or levels on each of which parking takes place. It is essentially a stacked parking lot. It involves an application of multiple access and exit systems to avoid traffic congestion in and out.
- 4.1.2 MLCP is a strategic way of increasing the Equivalent Car Space (ECS) at a parking site. Off-street or on-street parking does not enable optimum utilization of the land and leads to a capacity shortage in certain cases. However, a MLCP can accommodate many more vehicles than a land parking lot can depending on the number of floors, development control norms etc. A MLCP also offers enhanced comfort and security.
- 4.1.3 MLCPs are proposed to be developed at different locations in Belgaum on PPP basis. Based on stakeholder consultations, the following locations have been considered for developing MLCPs in Belgaum on PPP basis:
- Ramdev Galli
 - Railway Station
 - Sardar Ground
 - Laxmi Parking (Khanjar Galli)
- 4.1.4 The description of the sites where these MLCPs are proposed to be developed, project design etc. are elaborated in the subsequent sections of this chapter.

4.2 Components of the Project

- 4.2.1 **Technology:** ECS which includes the parking space occupied by a vehicle as well as the minimum area needed to move it into and out of parking space varies with the technology used. There are two basic technologies which are available for MLCPs:

Conventional Multilevel:

Conventional MLCPs can be characterized by underground, above ground or both under and above ground structures. These structures have multiple ramps leading to various floors to facilitate easy parking. The design for conventional MLCPs includes

- Entry and exit ramps
- Aisle or circulation space between vehicles
- Car parking area

Automated Multilevel:

As against cars being driven on ramps to different levels, in automated MLCPs vehicles are driven to only one level for parking or retrieval. Cars are parked in steel pallets and a target pallet comes up or down to the driveway level at the press of a button, for parking or retrieval.

Mechanized parking is majorly of four types depending on the structural integrity and the mechanism of retrieval or parking of the car as well as the ease of doing the same:

- Rotary Parking
- Tower System of Parking
- Puzzle Type of Parking
- Multi Floor Type of Parking

It is important to choose the type of MLCP to be implemented in order to decide the costing, parking capacity etc. While automated MLCPs can accommodate higher number of vehicles as the space required per ECS is less, these are more expensive to build & operate and are also more complex in nature. The technology considered in this pre-feasibility analysis is ramp-based conventional MLCPs.

- 4.2.2 **Number of floors:** It is necessary to plan the number of floors that would be used for the MLCPs and to decide on the pattern of this construction. It may be a structure above the ground in the form of a high-rise building with various storeys for parking or it may be implemented in the basement area or an underground construction. The MLCPs considered in this pre-feasibility analysis have 1 basement floor and 3-4 floors on the surface depending on the location and subject to the development control norms.
- 4.2.3 **Commercial Outlets:** MLCPs can be further supplemented and made more financially attractive by allowing commercial facilities to be developed and operated on certain floors. This pre-feasibility analysis does not consider such commercial development. In the analysis presented in this report, MLCPs have been analysed on stand-alone basis so as to assess their viability, because there is high parking demand in these sites along with limited availability of land.

4.3 Description of the Site

Site 1: Ramdev Galli (Bapat Galli)

- 4.3.1 One of the key locations considered for development of MLCP is at Ramdev Galli which is a busy commercial area at the central core of the city. Ramdev Galli parking would cater to the parking needs of Khade Bazaar and Bapat Galli areas. Khade Bazaar Galli is the main commercial hub of Belgaum. Khade Bazaar Road runs in east-west direction connecting Pune-Bangalore road and Belgaum-Panaji road making it a major sub-arterial road. The road faces a mixed land use where portion of the land is commercial, while the hinter part is used for residential use.



- 4.3.2 The Khade Bazaar area is famous for the various catchment shops from Belgaum, Kothapur and Goa. Also, the city's major temples are located around Ramdev Galli like

the Maruti Temple, Shri Samadevi Temple, Balaji Mandir, Murlidhar Mandir and others. People come here to worship in large numbers since it is at the city centre.

4.3.3 This area faces major parking and congestion issues. It is also congested with residential buildings as well as commercial outlets all along the road which makes it essential to have a high capacity car-parking to reduce road-blocks and stagnancy in traffic. The present situation at Ramdev Galli is as shown in the above image. Traffic is disturbed here due to on-street parking on both sides of the road.

4.3.4 The area coverage is shown in the map below with a point marked as car parking which is the site for the MLCP.



Site 2: Railway Station

4.3.5 Belgaum city is well connected by railways to other parts of the state and country. The Railway Station lies across the congested area of the old city and comes within the Cantonment Area.

4.3.6 People travelling outside the city who may need to park their vehicle on an hourly, daily or weekly basis add on to the congestion by parking along the Station Road. Moreover, the railway Bus Stand is located here which is an additional reason for traffic stagnancy.



4.3.7 The area proposed for the MLCP is as below:



Site 3: Sardar Ground

4.3.8 The proposed site at 'Sardar Ground' is the playground of Sardar High School. It is located along the College Road and is also surrounded by few commercial hubs nearby. During the college hours, students, faculty members and general public face major parking problems due to lack of area in comparison to the number of colleges, shops and offices located nearby. The Lingraj College, RLS College and the Government Polytechnic College are some of the institutions along the College Road. Alongside is a picture of the proposed site at Sardar Ground.



4.3.9 The eastern side of this site is flanked by Government offices like the 'Taluka Panchayat Office', 'Zila Panchayat Office' and Belgaum District Court. The employees here generally need parking for the entire day and they normally park around these offices along the Chavat Galli or along the College Road. This further accentuates the parking problem in the area.

4.3.10 Below is a satellite image of this site: Sardar Ground with a view of the site location.



Site 4: Laxmi Parking-Khanjar Galli

4.3.11 Long term parking of vehicles of shop owners and their employees at Khanjar Galli leads to space crunch for visitors resulting in parking spillover in the bye lanes and restricted areas. Alongside is a view of the area proposed for the MLCP at this location.

4.3.12 The DC office, Law Office, Zilla Panchayat office, Belgaum Talathi and Tahsildar office and Belgaum Traffic & Women Police Station are few of the Government offices located around this area. All these offices also impose a heavy parking demand on this area.

4.3.13 A satellite image of the site- Khanjar Galli is presented below. Corresponding to it is a real view of the site:



4.4 Interaction with Stakeholders

4.4.1 Interactions with stakeholders formed a critical component of the site visits. The list of key stakeholders consulted is presented in Annexure A. The interactions with these stakeholders were aimed at understanding site characteristics, parking demand, key issues etc. Select inputs received are grouped and summarized below:

Ramdev Galli-Bapat Galli:

4.4.2 An on ground parking lot presently exists in this area. The site for the proposed MLCP is this existing car parking lot on the Khade Bazaar Road.

4.4.3 It spans an area of about 0.5 acre and it falls under the Belgaum City Corporation. It has been licensed out to a private party at the rate of Rs. 6.5 lakhs per annum. The parking rate has been fixed at Rs. 10 for the first three hours and it is incremental at the rate of Rs. 10 per hour.

4.4.4 The current parking capacity here is 60 ECS but it has been estimated that the peak parking demand in and around this area is more than 350 ECS.

4.4.5 The site encompasses a temple on the land parcel which would be difficult to relocate.

Railway Station:

4.4.6 The current parking demand in this location has been estimated as:

- 200 per day for 2 wheelers
- 50 per day for 4 wheelers

4.4.7 The land in this location is owned by the Railways. Thus, land transfer is not a feasible option. Moreover, the site is situated in the Cantonment Area which has FAR restrictions. *Given these constraints, this site has not been considered for further analysis for developing a MLCP on PPP basis.*

Sardar Ground:

4.4.8 The total plot at this location is approximately 4 acres. The land is under the State Administrative control of the Divisional Commissioner and thus it falls under the jurisdiction of the Belgaum City Corporation.

4.4.9 It is primarily used for the purpose of rallies, sports events, festivals or to celebrate any public function. However, such events can be conducted only with prior permission from the Divisional Commissioner.

4.4.10 Owing to its location right on the major arterial College Road and considering a demand-supply shortage, the plan to construct a MLCP on this land parcel can be looked as a project of strategic infrastructure and proposed to the Divisional Commissioner. However, only a part of the land parcel can be used as a MLCP given the usage of the site for multiple events.

4.4.11 The current parking demand in this location has been estimated as:

- 200 per day for 2 wheelers
- 200 per day for 4 wheelers

Laxmi Parking-Khanjar Galli:

- 4.4.12 The land coverage of this site is approximately 3 acres and it is under the authority of the Belgaum City Corporation.
- 4.4.13 The Divisional Commissioner's office lies in close proximity to this area and a proposal of a basement parking has been made there. In case the plan does not get approved, the parking demand for Laxmi Parking could go up by another 50%.
- 4.4.14 A possible constraint in the development of a MLCP at Laxmi Parking (Khanjar Galli) is the presence of a large number of rented carpentry shops at the site and the frontage accessibility. Even though these shops pay a meager rent to the Belgaum City Corporation, it would be difficult to relocate these shops in order to build a MLCP.
- 4.4.15 The current parking demand in this location has been estimated as:
- 100 per day for 4 wheelers
 - 100 per day for 2 wheelers

4.5 Development Needs, Public Needs and Planning Considerations

- 4.5.1 As highlighted in the earlier sections, there is an inherent need for adequate parking facilities with efficient management systems at the above mentioned sites.
- 4.5.2 The CTTP of Belgaum states that MLCPs should satisfy some of the following requirements before implementation:
- Discourage other commercial uses in the same premises
 - Facilitate public transport
 - Facilitate non-motorized transport
 - Off-set the impact of removal of on street parking
 - Improve the traffic circulation of the vicinity

4.6 Best Case Studies for similar projects in India/ world

- 4.6.1 As discussed in previous sections, various initiatives have been undertaken to improve car parking systems. A few examples of MLCPs are discussed in Annexure B of this report.

4.7 Studies and Surveys already available that may have been considered

- 4.7.1 Certain reports and studies on Belgaum city and MLCPs have been referred to while undertaking this pre-feasibility analysis. These include :
- Development of Comprehensive Traffic and Transportation Plan for Belgaum
 - Final Pre-Feasibility Report for Development of Multi Level Car Parking Facilities on PPP Format in Cities of Karnataka
 - Final Pre-Feasibility Report for Multi-Level Parking Facility at Brindavan Gardens

5 Market Assessment

5.1 Industry Outlook

- 5.1.1 Increasingly off-street parking lots are being replaced by MLCPs primarily due to the increased capacity of the latter. Both automated as well as conventional MLCPs are seen as a replacement for congested road-side parking. However, automated parking is still limited to few locations due to its higher technical and financial requirements. In India, ramp-based conventional MLCPs are prevalent in shopping malls, hospitals and public amenity centres.
- 5.1.2 The city of Belgaum is currently facing a parking shortage. Unorganized on-street parking is leading to major congestion and inadequate walkways for public. Moreover, on-street parking and encroachment is reducing road capacity and the scope to widen the streets.
- 5.1.3 As per the Belgaum CTTTP Report, a parking survey was undertaken on all major arterial and sub – arterial roads. Parking studies were also conducted at various on and off – street parking locations. The parking survey indicated that current parking supply at most locations is inadequate. There is a need to increase parking supply by building more intensive parking spaces.

5.2 Opportunities & Demand Projections

- 5.2.1 The Belgaum CTTTP Report has proposed the construction of the following MLCPs:

Location	Present Supply	Proposed Supply (ECS)
Laxmi Parking	70	100
City Centre near Ramdev Galli	60	100
Dharwad Road near junction of Dharwad Road and Fort Road	Proposed	214
Sardar Ground	Proposed	287
CBT	Proposed	338
Railway Station	Proposed	106

Source: CTTTP

- 5.2.2 As highlighted earlier, based on stakeholder consultations, the following locations were visited for undertaking pre-feasibility analysis of developing MLCPs on PPP basis:
- Ramdev Galli
 - Railway Station
 - Sardar Ground
 - Laxmi Parking (Khanjar Galli)

5.2.3 Given the land ownership and FAR constraints of the Railway Station location and that three locations were mandated to be short-listed for pre-feasibility analysis, the Railway Station location was not considered for further analysis.

5.2.4 Based on stakeholder consultations and site visits, the following key observations can be made for the 3 sites.

Ramdev Galli

5.2.5 Ramdev Galli, Bandru Galli and Kanaji Galli are at the city centre and located close to the major commercial zone - Khade Bazaar. All of these have 2-lane undivided approach roads and parking across both sides of the street leads to congestion.

5.2.6 The current parking capacity here is 60 ECS but it has been estimated that the peak parking demand in and around this area is more than 350 ECS.

5.2.7 The key target segments of the MLCP could be:

- Visitors to CBD
- Shopkeepers
- Shoppers

Sardar Ground

5.2.8 Parking on College Road is currently not regulated. During college hours, parking is done by students and faculty members along the street which reduces the area of traffic movement along this road. The College Road also has parking demand from Government offices located nearby.

5.2.9 The current parking demand in this location has been estimated as:

- 200 per day for 2 wheelers
- 200 per day for 4 wheelers

5.2.10 The key target segments of the MLCP could be:

- Students
- Faculty Members
- Government employees
- Visitors to Government offices

Khanjar Galli

5.2.11 There is high parking demand at Khanjar Galli due to the presence of large number of shops. Khade Bazaar and Ganpat Galli are the demand drivers. Khanjar Galli is also surrounded by Government offices such as the office of the Divisional Commissioner, Law office, Zilla Panchayat office etc.

5.2.12 The current parking demand in this location has been estimated as:

- 100 per day for 4 wheelers
- 100 per day for 2 wheelers

5.2.13 The key target segments of the MLCP could be:

- Shopkeepers

- Shoppers
- Visitors to CBD
- Government employees
- Visitors to Government offices

6 Project Financials

6.1 Project Design

6.1.1 The proposed coverage of the system in each of the locations, after interaction with key stakeholders and assessment of site characteristics, is described in the table below.

Particulars	Ramdev Galli	Sardar Ground	Laxmi Parking (Khanjar Galli)
Technology	Ramp Based	Ramp Based	Ramp Based
Site Area (sq ft)	15,715	39,988	15,715
ECS*	100	287	100
No. of floors (surface)	3	4	3
No. of floors (Basement)	1	1	1
Category of Vehicles	2W + 4W	2W + 4W	2W + 4W

* It may be noted that for analysis in this report, an ECS is considered to be equivalent to 310 sq. ft. and 325 sq. ft. for surface / floor parking and basement parking respectively.

Ramdev Galli

6.1.2 Based on the Belgaum CTTTP and assessment of the site, the Ramdev Galli MLCP has been designed to have a capacity of 100 ECS. The site area has been taken as 15,715 sq ft.

6.1.3 Based on a FAR of 1.5, the surface Built Up Area (BUA) of the MLCP is 23,573 sq ft. Moreover, 1 basement level with 50% site coverage has been assumed. Hence, the total BUA of the site is 31,431 sq. ft.

6.1.4 The ramp based MLCP has been planned to be designed as a four level structure $\{(-1)+G+(+1)+(+2)\}$.

Sardar Ground

6.1.5 Based on the Belgaum CTTTP and assessment of the site, the Sardar Ground MLCP has been designed to have a capacity of 287 ECS. The site area has been taken as 39,988 sq ft.

6.1.6 Based on a FAR of 1.75, the surface Built Up Area (BUA) of the MLCP is 69,979 sq ft. Moreover, 1 basement level with 50% site coverage has been assumed. Hence, the total BUA of the site is 89,973 sq. ft.

6.1.7 The ramp based MLCP has been planned to be designed as a five level structure $\{(-1)+G+(+1)+(+2)+(+3)\}$.

Laxmi Parking (Khanjar Galli)

- 6.1.8 Based on the Belgaum CTPP and assessment of the site, the Laxmi Parking (Khanjar Galli) MLCP has been designed to have a capacity of 100 ECS. The site area has been taken as 15,715 sq ft.
- 6.1.9 Based on a FAR of 1.5, the surface Built Up Area (BUA) of the MLCP is 23,573 sq ft. Moreover, 1 basement level with 50% site coverage has been assumed. Hence, the total BUA of the site is 31,431 sq. ft.
- 6.1.10 The ramp based MLCP has been planned to be designed as a four level structure $\{-1\}+G\{+1\}+2\}$.

6.2 Cost Assumptions

- 6.2.1 The cost of setting up a MLCP system depends primarily on technology used, scale and supplementary facilities provided. As highlighted earlier, a ramp-based conventional MLCP without any commercial development has been proposed at all the 3 locations.
- 6.2.2 The cost assumptions taken in this pre-feasibility analysis are based on stakeholder interactions, previous studies and secondary research. The table below presents the major cost assumptions which have been taken for all the 3 locations.

Project Costs

Civil construction cost for surface parking (Rs. per sq. ft.)	900
Civil construction cost for basement parking (Rs. per sq. ft.)	1,000
Pre-operative expenses (% of sum of above)	5%
Contingency (% of sum of above)	3%
Escalation (% of sum of above)	5%
Financing charges (% of debt)	1.0%
Interest rate during construction	13%
Capital expenditure phasing (1st year)	60%
Capital expenditure phasing (2nd year)	40%

- 6.2.3 The Total Project Cost of each location is presented below.

Total Project Cost (TPC) (Rs. Million)	Ramdev Galli	Sardar Ground	Laxmi Parking (Khanjar Galli)
Civil construction cost	29.07	82.97	29.07
Other costs	4.54	13.01	4.54
Total Project Cost (Rs. Million)	33.61	95.98	33.61

6.3 Other Assumptions

6.3.1 Key operating expenditure related assumptions are:

O&M Expenses

Administration cost (Rs. million per annum)	0.75
Routine maintenance expenditure per annum (% of capital cost)	1%
Periodic maintenance (every 15 years as % of capital cost)	5%
Average salary (Rs. per person per annum)	84,000
Power (unit per ECS) – daily	1.00
Cost of power (Rs. per unit)	7.00
Insurance (% of depreciated assets)	0.15%

- All the O & M expenses (except insurance) have been assumed to increase at a rate of 5% per year owing to inflation.
- The manpower requirement in case of Ramdev Galli and Khanjar Galli is 12 and the Manpower requirement for Sardar Ground is 14, estimated based on no. of floors proposed.
- No lease rental has been considered in base case. However, based on viability of the project, lease rentals may be considered to be included in the project structure.

6.3.2 Other key assumptions taken for conducting the viability assessment of the 3 locations are as provided below:

- **Debt: Equity Ratio:** A Debt: Equity ratio of 50:50 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 8 years with moratorium period of 2 years has been assumed
- **Income Tax rate:** Income Tax of 32.45% (including surcharge & education cess) has been assumed
- **Concession Period:** A concession period of 30 years has been considered including a construction period of 1.5 years.

6.4 Tariff Revenue Stream

6.4.1 Revenue generated from parking fees and advertising would be the two major revenue streams for the concessionaire. Based on site characteristics and stakeholder consultations, the following assumptions have been taken for the 3 locations:

Revenue	Ramdev Galli	Sardar Ground	Khanjar Galli
Advertising charges (Rs. per sq. ft. per month)	30	30	30
Advertising space (sq. ft.) (based on size of the MLCP)	1,000	2500	1,000
Average parking duration (hours)	3	3	3
Average parking hours in a day	15	12	15
Average capacity utilization	90%	90%	90%
Average parking fee (Rs. per parking duration)	30	30	30
Escalation (% per annum)	5%	5%	5%

6.5 Viability Assessment

6.5.1 Based on the above assumptions and considering 0% Grant and no revenue sharing, the key financial indicators of the MLCPs are as provided below:

FINANCIALS	Ramdev Galli	Sardar Ground	Khanjar Galli
Equity IRR	9.86 %	10.15 %	9.86 %
Project IRR	10.55 %	10.80 %	10.55 %
Average DSCR	0.85	0.87	0.85
Min. DSCR	0.57	0.60	0.57

6.5.2 Based on the above results, it is evident that the proposed MLCPs require financial support from the Government.

6.6 Financial Support

6.6.1 Considering a capital grant provided as financial support and a target Equity IRR of 15%, the key financial indicators are indicated in the table below for each of the 3 MLCPs:

FINANCIALS	Ramdev Galli	Sardar Ground	Khanjar Galli
Grant %	33.25%	31.50%	33.25%
Grant (Rs. Million)	11.18	30.23	11.18
Equity IRR	15.00 %	15.00 %	15.00 %
Project IRR	10.21 %	10.49 %	10.21 %
Average DSCR	1.25	1.25	1.25
Min. DSCR	0.84	0.85	0.84

6.6.2 It is to be noted that the estimates of Grant provided in this report are based on certain assumptions and the same may vary after detailed studies. The detailed financial sheets for all the 3 MLCPs are given in Annexure C.

6.7 Sensitivity Analysis

6.7.1 Sensitivity analysis for the 3 MLCPs has been undertaken with respect to civil construction cost, revenue and operating expenditure. Results for the same are presented in Annexure D.

6.7.2 It is observed from the sensitivity analysis that the MLCPs are highly sensitive to revenue as compared to civil construction costs and operating expenditure. Therefore, it is recommended that the revenue opportunities be further explored through a detailed market analysis.

7 Statutory & Legal Framework

7.1 Applicable Policies

7.1.1 The Karnataka Municipal Corporation Act, 1976

This Act enables the formation of a Municipal Corporation in Karnataka. The Corporation will have the power to strategize, draft, design, build, operate and maintain all public roadwork and related infrastructure in the concerned city. The provisions of this Act include the specification of the obligations and functions of the incorporated Corporations and the specifications for strengthening the administrative system of the Corporations. It also allows the grant of selected powers to the Mayor and the Deputy Mayor.

7.1.2 Karnataka New Infrastructure Policy, 2007

According to Clause 27 of this policy, the procurement process of public goods in Karnataka takes place under the provisions of the Karnataka Transparency in Public Procurement (KTTP) Act or a 'Swiss Challenge' arrangement. The KTTP Act details the procurement process, probable criteria for awarding and the evaluation process relating to Private Party proposals.

7.1.3 National Urban Transport Policy, 2010

This policy has provisions for mandatory requirements for Multi-level parking in city centres with numerous high rise or multi-level commercial developments. These Multi-level parking complexes can be constructed underground, even beneath the 'green belts'. Public-Private Partnerships are encouraged for the development of these complexes in order to reduce fiscal stress of the Public sector. Electronic metering is pushed to enable efficient parking fee realization and improved recovery of the cost of using viable urban land for the construction of Parking lots.

7.1.4 Belgaum Urban Development Authority – Zonal Regulations, 1993

The Belgaum Urban Development Authority issued Zonal Regulations for Belgaum in 1993. The objective of these regulations is to specify the permissible uses that classified areas can be put to. It also specifies regulations with respect to parking. The classified areas include the Residential Zone, Commercial Zone – Retail Business Zone, Industrial Zone, Agricultural Zone and Public and semi-public uses. Amongst the specifications are:

- Permissible land use in different categories
- Maximum Plot Coverage
- Maximum Number of Floors
- Floor Area Ratio (FAR) and Road Width

7.2 Legal & Regulatory framework

7.2.1 Karnataka Town and Country Planning Act, 1961

This Act seeks to regulate the growth of land use and development by checking the disorganized evolution of towns and cities in Karnataka. It empowers the State Government to declare any area as a 'Local Planning Area' and to establish a Planning Authority for the same. The responsibilities of the Planning Authority include the full execution of the provisions of this Act and the development of a Master Plan for the progress of the concerned local planning area. Town Planning Schemes can be formulated for the successful implementation of such a Master Plan.

7.2.2 Karnataka Urban Development Authorities Act, 1981

The Karnataka Urban Development Authorities Act of 1981 establishes Urban Development Authorities in Karnataka. This is to ensure organized and efficient growth of important urban parts of the state.

7.2.3 Karnataka Municipalities Act, 1964

This Act aims to consolidate all the laws relevant to the management of Municipal affairs for areas other than areas that already have established and functioning Municipal Corporations.

The provisions of this Act empower the Municipal Bodies to acquire land, even outside the ambit of the municipal area, for providing civic amenities and for fulfilling its obligations.

Under Section 72(1) of this Act, the Municipal Corporation can lease, sell or transfer its property and enter contracts in order to implement certain provisions of this Act. Thus, the Municipal Corporations can allocate land to private players and enter the required contracts for the provision of civic amenities such as car parking.

7.2.4 Ministry of Urban Development (Urban Transport) 37th Report, 2008-09

7.2.4.1 The Ministry of Urban Development has established a Standing Committee to study the development of urban transport in India and also to recommend ways of improving its status. The rapid growth of urban population and of economic and commercial activities has lent to increased pressure on urban transport in every city of the country. The major fallouts of this include congestion of roads, worsening air quality, increased noise pollution and constrained parking in commercial areas. The Standing Committee will study the current situation and propose improvements.

7.2.4.2 The 37th report of the Standing Committee has made recommendations for the improvement of the Indian urban transport system under the Public Private Partnership (PPP) structure. The suggestions of this report include encouragement of private sector participation in the area of transportation and development of parking lots by giving them tax concessions. The report also encourages the introduction of inter-modal public transportation systems, environment friendly technologies, improved parking facilities and the development of Intelligent Transport Systems.

8 Indicative Environmental & Social Impacts

8.1 Environmental Impacts

- 8.1.1 The unavailability of proper parking zones leads to traffic congestion, pedestrian spills as well as air and noise pollution.
- 8.1.2 The following presents the general impact during construction and operation phases of MLCPs and suggested mitigation measures:

	Impacts Areas	Mitigating Measures
Ambient Impacts	Air Quality	<ul style="list-style-type: none"> •Frequent watering of construction sites to suppress dust emissions •Transport of earth in covered vehicles
	Noise pollution	<ul style="list-style-type: none"> •Use of less noise generating equipment •Avoid activities during night.
Waste & Residue Impacts	Soil contamination	<ul style="list-style-type: none"> •No spillage of oil/ diesel from the construction equipments
	Water Contamination	<ul style="list-style-type: none"> •Any construction activity to prevent contamination of water bodies
	Disposal of Residue	<ul style="list-style-type: none"> •Transportation of the excess earth to a designated place •Use the same for filling and covers
Other disturbances	Essential Service	<ul style="list-style-type: none"> •Any shifting of cable / utility lines to be attended with minimum period of disturbance
	Safety	<ul style="list-style-type: none"> •Provision of temporary crossings/bridges to be made wherever necessary to facilitate normal movement
	Natural Drainage	<ul style="list-style-type: none"> •Any Construction activity to restore the natural course of drainage

8.2 Social Impacts

- 8.2.1 Certain sites for the proposed MLCPs have pre-existing facilities / structures which would either be required to be taken into account while undertaking detailed technical study or would be required to be demolished. For example, the Ramdev Galli site encompasses a temple on the land parcel which would be difficult to relocate. There are also a large number of rented carpentry shops at the Khanjar Galli site which may need to be relocated during the construction of the MLCP.
- 8.2.2 For the successful implementation of the MLCPs, on-street parking in and around these locations would need to be prohibited. This would involve changing the mindset and prevailing practices of people.

- 8.2.3 The major positive impact of the MLCPs would be provision of organized space for parking and reduction of congestion in and around these locations. This would also facilitate pedestrian movement and traffic circulation.
- 8.2.4 MLCPs would help to reduce noise and air pollution in the vicinity leading to a healthier quality of life.
- 8.2.5 MLCPs would provide convenience and enhanced security to vehicle owners as well as ensure area optimisation in line with best practices and land use principles.

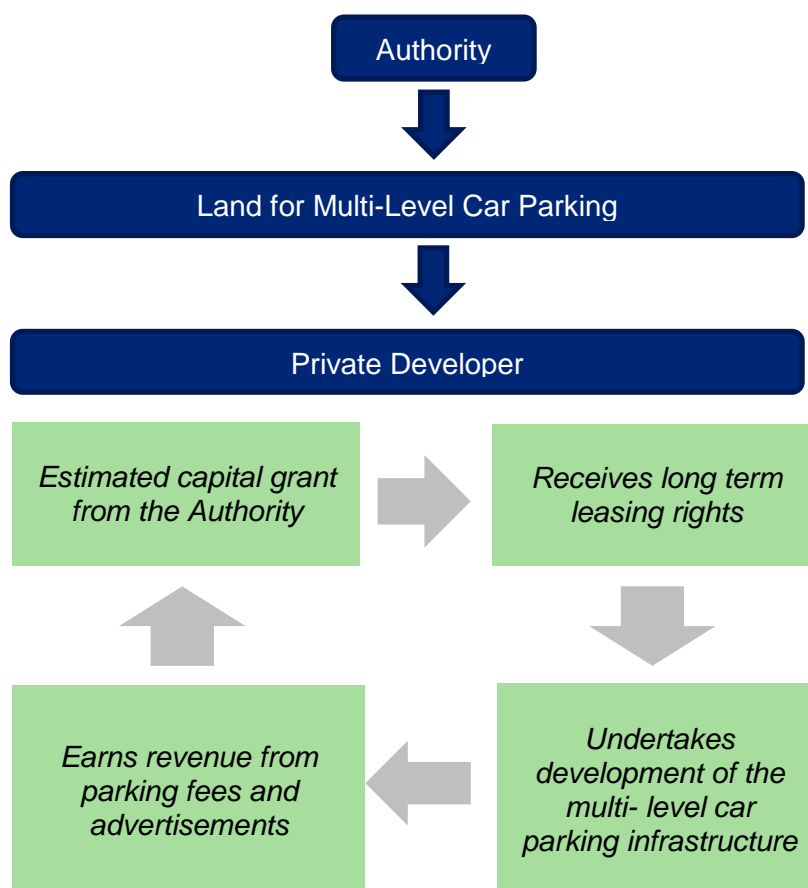
9 Operating Framework

9.1 Background

9.1.1 Project structuring and packaging involves distribution of risks and returns efficiently. It requires balancing the interests of the diverse stakeholders and contracts that clearly define the roles, responsibilities and risks allocated to each partner.

9.2 Indicative Project Structuring

9.2.1 Based on the above premise, the indicative project structure for development of MLCPs on PPP basis is indicated in the figure below.



9.2.1 The Government authority to hand over the site to the Concessionaire on Build, Operate and Transfer (BOT) basis for a 30 years concession period through a transparent two stage bidding process.

9.2.2 The Concessionaire will develop the MLCP within the estimated completion period.

9.2.3 The Concessionaire will receive capital grant from the Authority during the construction period.

9.2.4 The Concessionaire will operate and maintain the facility during the concession period. All parking charges and advertisement revenue shall accrue to the Concessionaire.

9.2.5 The Concessionaire will hand back the project facility to the Authority after the end of the Concession Period on an as- is- where- is basis

9.3 Risks and Mitigation

9.3.1 The project specific risks, degree of impact and indicative mitigating measures for the projects are presented in the table below:

Risk	Impact	Indicative Risk Mitigants	Risk Bearer
Pre-Completion Risk			
Encumbrance free land allocation	Medium	Adequate penalties specified in the Agreement in case of delay	Authority
Cost over-run	Low	Fixed cost contract with EPC contractor with adequate pre-defined penalties	Concessionaire
Time over-run	Low	Fixed time contract with adequate pre-defined penalties	Concessionaire
Design and Engineering Risks	Low	Technical and Engineering Studies	Concessionaire
Financing risk	Medium	Robust procurement process, syndication	Concessionaire
Regulatory risk (Govt. approvals)	Medium	Adequate provisions in the Agreement	Authority and Concessionaire
Operating Risk			
Demand forecast	Medium	Detailed demand assessment	Concessionaire
Parking charges / willingness to pay	High	Target segment surveys, regulatory action to ban on-street parking in and around these locations	Concessionaire
Operational & Maintenance risk	Low	O&M Contracts, routine maintenance, professional management	Concessionaire
Force Majeure	Low	Adequate provisions in the Agreement	Authority and Concessionaire

10 Way Ahead

10.1 Project Development Framework

- 10.1.1 The project as analyzed above prima facie seems to be viable for implementation on PPP basis, with provision of Viability Gap Funding / Grant from the Government/ Agency. It is to be noted that the estimates of VGF / Grant provided in this report are based on certain assumptions and the same may vary after detailed studies. However, it provides indicative assessment of the funds required from Government / Agency for these MLCPs.
- 10.1.2 It is also to be noted that certain sites for the proposed MLCPs have pre-existing facilities / structures which would either be required to be taken into account while undertaking detailed technical study or would be required to be demolished. While undertaking analyses of MLCPs at these sites, the same have appropriately been taken into account and the associated details have been highlighted.
- 10.1.3 The concerned agencies/authorities should freeze the project design in terms of components, facilities, its PPP structure and the exact physical sites that will be made available for the development. This would also involve estimation of exact land area available for the MLCP. The analyses has been undertaken based on stakeholder consultations, site visits and land requirement calculated from the capacity requirement mentioned in corresponding CTPP study conducted by DULT earlier.
- 10.1.4 It is important to note that for the successful implementation of the MLCPs, on-street parking in and around these locations would need to be prohibited.
- 10.1.5 DULT should initiate formal discussions with Belgaum City Corporation and initiate the regulatory clearance process for the proposed projects.

10.2 Appointment of Technical Consultant and Transaction Advisor

- 10.2.1 It is recommended that certain detailed studies be undertaken before taking the projects to the next stage, i.e. invitation of tenders. A technical advisor may be appointed to conduct detailed technical studies, market assessment and cost estimation for the projects. The indicative terms of reference for engaging a technical consultant are provided at Annexure E.
- 10.2.2 Subsequently, a transaction advisor may be appointed for structuring of the projects on PPP basis, development of bid documents (including Draft Concession Agreement) and management of the bid process. The indicative terms of reference for engaging a transaction advisor are provided at Annexure F.

Annexures

Annexure A: List of Stakeholders Met

Name	Designation
Mrs. Manjula V.	Commissioner, DULT
Mr. Shailender Singh	Special Officer, DULT
Mr. RS Naik	Executive Engineer, City Corporation Belgaum (North)
Mr. Halgi	Executive Engineer, City Corporation Belgaum (South)
Mr. PN Ravindra	Commissioner, BUDA
Mr. V N Karekar	Town Planner Member, BUDA
Mr. Prakash	Town Planner, BUDA
Mr. Deshpande	Assistant Engineer, BUDA
Mr. CL Kulkarni	Revenue Officer, City Corporation Belgaum
A.B Hiremath	Assistant Engineer, BUDA
Mr. Mulla	DRO, City Corporation, Belgaum

Annexure B: Case Studies for similar projects in India

Case I: Kolkata Car-Parking System

Situation before introduction of the system:

At the heart of Kolkata, lies the New Market area near the Kolkata Municipal Corporation (KMC). It is a very busy commercial zone with narrow streets and roads and off-street shops and insufficient space for movement of both pedestrians as well as vehicles. The Lindsay Street, part of this locality, is one of the most congested roads in terms of traffic. This problem was further aggravated by haphazard and unmonitored parking that led to serious traffic jams. In order to find a solution to these problems, the KMC decided in 2001 to construct the city's first underground parking system of Lindsay Street.



The multi-level underground car parking system, inaugurated in April 2007 was on a Build-Own-Operate-Transfer (BOOT) basis and benefited the KMC, the concessionaire(contractor) and most of all, car owners and pedestrians. The unique feature of the project is the provision for the five direct car lifts for drivers to take their cars to and fro from the parking lot.

Implementation:

KMC entered into a PPP with the concessionaire (Simplex) to construct a multilevel parking system including a shopping complex at the Lindsay Street. The PPP parking project was conceptualized as a two-part BOOT project with double concession periods - one for the parking system and the other for the commercial complex both of which were underground. There are two levels of basement in the system, of which the upper basement (Level 1) has been utilized for commercial development while the lower basement (Level 2) is exclusively used as a car parking area.

UG Level 1: Commercial Development

In order to make the project self-sustaining and also as part of the BOOT arrangement, the KMC granted permission to Simplex to construct and lease out the commercial blocks on a long-term basis.

Simplex paid both the lease rent and basic rent. The company collects lease amounts from the shop owners, which is used for the upkeep of the commercial premises at level 1. A total of 200 shops have been leased out to traders. Simplex entered into a lease



agreement with the particular trader ('lessee') for an initial period of 60 years during which it would collect the lease premium. The concessionaire was also granted the authority to collect

the parking fee of the parking lot during the period of concession and 5% of the gross revenue generated from the same was to be passed on to KMC.

UG Level 2: Parking Lot

The KMC and Simplex Projects entered into a BOOT agreement for 20 years for the parking system. The fully automated parking system at the underground Level-2 of the Lindsay Street has been operational since April 2007. The construction of the overground commercial complex was kept in tune with the ambience of a walkway and pedestrian plaza, the features of which merged with the architectural features of the existing heritage structure. Glass was used on the structure above the ground level for total visibility of the adjoining New Market façade.

Statistics of Automated Car Parking in Kolkata:

SI No.	Topics	New Market	Rawdon Street
1	Total Number of Car Parking Places	280	213
2	Area per car(sqmr)	11	11
3	Area of parking(sqmr)	4000	1450
	Average Length(mtr)	216	198
	Average Width(mtr)	18.5	7.3
4	Total number of floors	(-1)+(-2)	G+(+1)+(2)
5	Parking level	(-2) floor only	G,+1,+2
6	Floor Height(mtr)	3.35(-1level)	2.75(G level)
		2.6(-2level)	4.05(+1level)
			4.05(+2level)
7	No. of Entries	5	2
8	No. of Elevators	5	2

Source: KMC

The KMC has permitted Simplex to impose and collect the parking charges for all the vehicles parked within the system on mutually agreed terms and conditions. The annual revenue earned from parking that is to be shared with the KMC is for the concession period of 20 years. Simplex has also been given the right to put up advertisements in the form of show-windows, kiosks and other such formats at no additional cost. The concessionaire would give an extra bonus of 10% to KMC if its revenue is more than the expenses. Instead of the provision made for an advanced parking system, people still park off street. In order to avoid such a non-adherence to the system and also to decongest the Lindsay Street locality, the KMC has prohibited "on-street parking" in the surrounding zone that is located around the system and within a radius of 100 meters. At the expiry of the 20-year concession period, the parking system will be handed over to the KMC. The parking fee is Rs. 10 per hour (with a provision of discount for long-term parking) and is collected by Simplex.

At the expiry of the agreement, the company would prepare an annual O&M contract with KMC and as a part of the annual contract the company would also provide free training to engineers or qualified personnel nominated by the KMC to manage and maintain the system.

Budgetary Implications and Sustainability:

Total Cost of the Project: The approximate capital cost was Rs. 36 crore and was borne by the Concessionaire (Simplex Projects).

Source of Finance for Sustainability of the Project

- Parking fees, advertisement rights and premium on shops – provides returns on investment to the concessionaire as a part of the BOOT contract.
- Projection of the 5% annual revenue that is provided to KMC by Simplex for 20 years would tantamount to an annual revenue of Rs. 5 lakh on an estimation basis, for KMC.
- The quarterly basic rent that the KMC gets from each of the shop owners is the return that the KMC gets for giving rights to the BOOT operator for use of its vacant land.

Estimated Projected Annual Revenue generated by KMC:

Total project cost	Rs. 36 crore approx.
Parking charges	Rs. 10 per hour/vehicle
Annual revenue for KMC	
1. Parking	5% of total parking charges i.e. Rs. 5 lakh estimated
2. Shops	Rs. 100 a year/sq.m. i.e. Rs. 9.2 lakh

Source: KMC

Success:

A BOOT model of public-private partnership has many advantages. Over a long concession period, both the BOOT operator and the KMC are bound to earn profits.

Public service provided by the local government has become an alternative source of additional revenue. However the major success is in the fact that a serious issue of irregularities in traffic has been resolved which has in turn eased pedestrian movement.

Further, the project benefited all the stakeholders–

- KMC
- The construction company/contractor
- The car owners
- The harassed pedestrians.

Case II: Delhi Automated Car Parking:

Delhi's first automated multi-level car parking lot was opened at the crowded Sarojini Nagar Market in April 2012. It is expected to reduce congestion on the roads and allow shoppers to leave their vehicles at a safe place. The capital cost involved in the construction of this parking lot is approximately Rs 80 crore. New Delhi Municipal Council has entered into a PPP with DLF, the real estate player to develop this parking lot known as the 'South Square'. Designed to accommodate 824 vehicles, the multi-level parking area is fully automated and has car lifts, pallets, computerised control systems that will be operational round the clock.

System:

People use the parking by buying a 'car park card', drive into the facility and leave the car at the basement, from where it is automatically taken to the parking area. As the car reaches the Parking Window, the registration number is scanned, in-time is recorded and the information from the camera is relayed to the operation system. After the process, the driver gets a smart card which he can use to take the vehicle back. The automatic system saves the time which is generally spent in searching for empty parking slots and later in searching for the parked car. Once a car is on the parking floor, the car pallet is positioned by the computerised system for optimal utilisation of space. The pallets move forward, backward, left and right to allow the cars to be moved towards the lift for retrieval.

The automated parking system has an avant-garde security check system and car scanning technologies with improved security, safety for parking of the cars in minimum space. People are required to pay Rs 10 for the first two hours and then Rs 10 for each subsequent hour upto a maximum of Rs 40 per day. Cars can be parked from 2nd to 8th floor while the ground and first floors will have retail outlets and restaurants. The retail space also provides house kiosks that can be converted into seasonal market spaces for festive fairs that would sell candles during Christmas and diyas during Diwali. The parking lot has common space and circulation spaces that include access corridors, lift lobby, passages, corridors and common toilets. It also has underground water tanks, pump room, electric sub-stations and a sewage treatment plant.

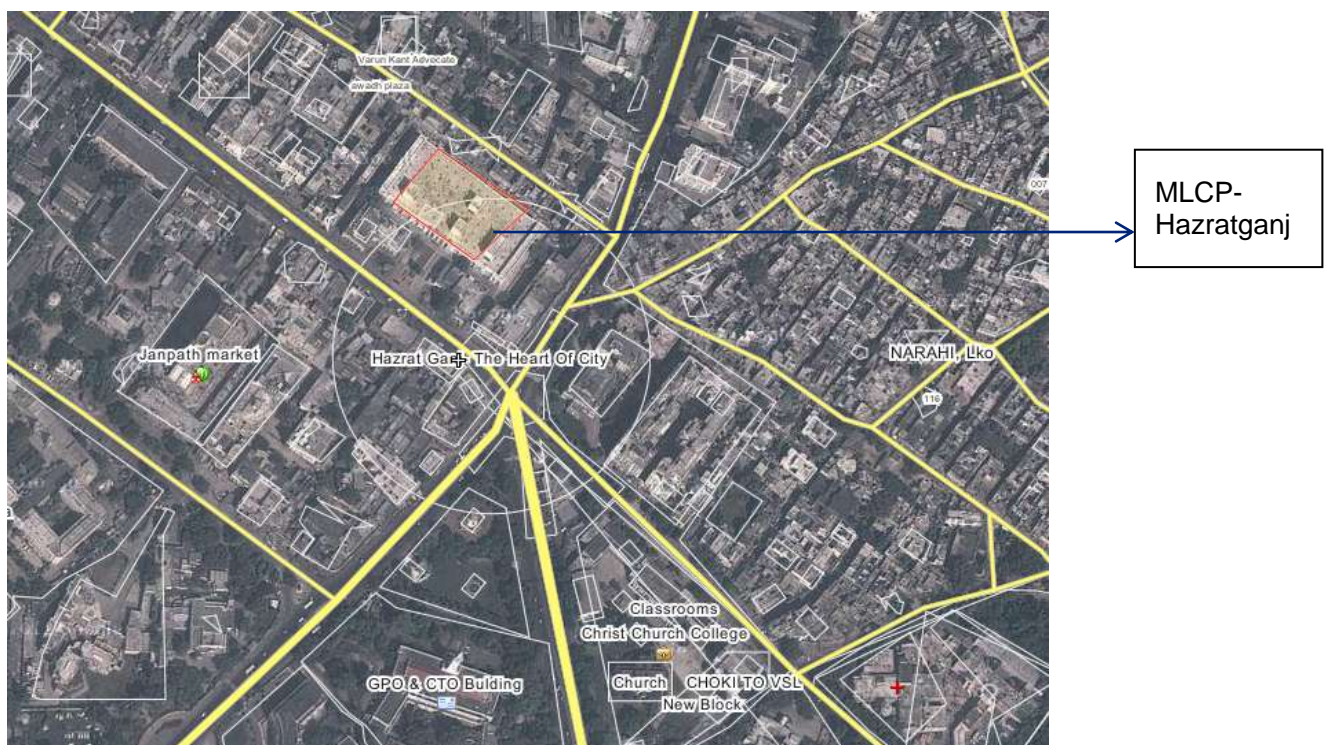
Case III: Car Parking in Hazratganj, Lucknow:

Hazratganj, located at the heart of the Lucknow city, faced chaotic parking, traffic irregularities and insufficient space for traffic movement. The parking project was initially planned on a PPP basis but was finally built by the Lucknow Development Authority (LDA) at an initial estimated cost of Rs. 32 crore, since there was no headway as recession hit the market. The project was planned and finalized in 2009 and finally completed in 2011. The total Project cost was Rs.50 crore.

It is a three-tier parking lot covering an area of 12,000 sq mt. It has a drive-in ramp leading to the different levels. While the basement, ground and the first floor together houses about 900 cars, the second floor of the building is used as office space. The basement with an area of 6000 sq mt individually can accommodate 200 vehicles. It has been designed on a G-3 model (ground plus three layers) which makes the parking lot a five storey facility, taking along the basement. The top layer is a terrace. The total capacity of the multi-level parking lot is 970 vehicles at any given point of time.

It is strategically located at the north of Hazratganj. It caters to the parking demand from the congested city centre as well from the Janpath Market nearby and offices, corporate buildings as well as colleges around, all day long. In order to restore the original look of Hazratganj, the Lucknow Municipal Corporation (LMC) has removed the hoardings. It also ordered for installation of uniform signboards and painting all the buildings in the same colour. It is featured by tiled pathways with Victorian style lamp posts and benches. While the construction was undertaken, the infrastructure was upgraded by improving the drainage system and putting electricity and telephone cables underground.

For parking a car, one needs to pay a sum of Rs.10/- only and Rs.25/- for more than 4 hrs. The site of the MLCP in Hazratganj is shown below in the map:



Annexure C: Financial Summary

SITE 1: RAMDEV GALLI

Profit and Loss Account (Rs. Million)

Operations Year	1	5	10	15	20	25	29
% Operational	50%	100%	100%	100%	100%	100%	100%
Escalation Factor	1.00	1.22	1.55	1.98	2.53	3.23	3.92
Income							
Average parking fee (Rs. per parking duration)	30	35	45	60	75	95	120
Parking revenue	2.46	5.75	7.39	9.86	12.32	15.60	19.71
Advertisement charges	0.18	0.44	0.56	0.71	0.91	1.16	1.41
Total income	2.64	6.19	7.95	10.57	13.23	16.76	21.12
Operating Expenditure							
Administration cost	0.38	0.91	1.16	1.48	1.90	2.42	2.94
Routine maintenance expense	0.17	0.41	0.52	0.67	0.85	1.08	1.32
Periodic maintenance expense							
Manpower cost	0.50	1.23	1.56	2.00	2.55	3.25	3.95
Power cost	0.11	0.27	0.34	0.43	0.55	0.71	0.86
Insurance	0.03	0.03	0.02	0.02	0.01	0.00	-
Lease rental	-	-	-	-	-	-	-
Total operating expenditure	1.19	2.84	3.61	4.60	5.86	7.46	9.07
EBITDA	1.45	3.35	4.34	5.97	7.37	9.30	12.05
Depreciation	0.39	0.79	0.79	0.79	0.79	0.79	0.79
Interest	0.73	0.61	-	-	-	-	-
Profit Before Tax (PBT)	0.33	1.95	3.55	5.18	6.59	8.51	11.27
Tax	0.07	0.38	1.11	1.76	2.29	2.96	3.87
Profit After Tax (PAT)	0.26	1.57	2.44	3.42	4.30	5.56	7.40

Cash Flow

Operations Year	0	1	5	10	15	20	25	29
Equity IRR Calculation								
PAT (Rs. million)		0.26	1.57	2.44	3.42	4.30	5.56	7.40
Depreciation (Rs. million)		0.39	0.79	0.79	0.79	0.79	0.79	0.79
Total cash inflows (Rs. million)	-	0.66	2.35	3.23	4.21	5.08	6.34	8.18
Share capital (Rs. million)	11.22	-						
Loan repayment (Rs. million)		-	1.87	-				
Total cash outflows (Rs. million)	11.22	-	1.87	-	-	-	-	-
Net cash inflows	(11.22)	0.66	0.48	3.23	4.21	5.08	6.34	8.18
Equity IRR	15.00%							
Project IRR Calculation								
EBITDA (Rs. million)		1.45	3.35	4.34	5.97	7.37	9.30	12.05
Capex (Rs. million)	20.17	13.45						
IDC (Rs. million)	0.29	0.51						
Net cash inflows - pre-tax (Rs. million)	(19.88)	(11.48)	3.35	4.34	5.97	7.37	9.30	12.05
Tax (Rs. million)		0.07	0.38	1.11	1.76	2.29	2.96	3.87
Net cash inflows - post-tax (Rs. million)	(19.88)	(11.55)	2.96	3.23	4.21	5.08	6.34	8.18
Project IRR (pre-tax)	12.75%							
Project IRR (post-tax)	10.21%							
DSCR Calculation								
PAT (Rs. million)		0.26	1.57	2.44	3.42	4.30	5.56	7.40
Depreciation (Rs. million)		0.39	0.79	0.79	0.79	0.79	0.79	0.79
Interest (Rs. million)		0.73	0.61	-	-	-	-	-
Total funds flow from project (Rs. million)		1.39	2.96	3.23	4.21	5.08	6.34	8.18
Loan repayment (Rs. million)		-	1.87	-				
Interest (Rs. million)		0.73	0.61	-	-	-	-	-
Debt service requirement (Rs. million)		0.73	2.48	-	-	-	-	-

DSCR		1.90	1.20				
Average DSCR	1.25						
Min. DSCR	0.84						

SITE 2: SARDAR GROUND**Profit and Loss Account (Rs. Million)**

Operations Year	1	5	10	15	20	25	29
% Operational	50%	100%	100%	100%	100%	100%	100%
Escalation Factor	1.00	1.22	1.55	1.98	2.53	3.23	3.92
Income							
Average parking fee (Rs. per parking duration)	30	35	45	60	75	95	120
Parking revenue	5.66	13.20	16.97	22.63	28.28	35.83	45.25
Advertisement charges	0.45	1.09	1.40	1.78	2.27	2.90	3.53
Total income	6.11	14.29	18.37	24.41	30.56	38.73	48.78
Operating Expenditure							
Administration cost	0.38	0.91	1.16	1.48	1.90	2.42	2.94
Routine maintenance expense	0.48	1.17	1.49	1.90	2.43	3.10	3.76
Periodic maintenance expense							
Manpower cost	0.59	1.43	1.82	2.33	2.97	3.79	4.61
Power cost	0.31	0.76	0.98	1.24	1.59	2.03	2.46
Insurance	0.10	0.08	0.07	0.05	0.03	0.01	-
Lease rental	-	-	-	-	-	-	-
Total operating expenditure	1.85	4.35	5.52	7.01	8.91	11.35	13.78
EBITDA	4.25	9.94	12.85	17.40	21.65	27.38	35.01
Depreciation	1.15	2.31	2.31	2.31	2.31	2.31	2.31
Interest	2.14	1.78	-	-	-	-	-
Profit Before Tax (PBT)	0.96	5.85	10.54	15.10	19.34	25.07	32.70

Tax	0.19	1.17	3.30	5.13	6.72	8.70	11.24
Profit After Tax (PAT)	0.77	4.68	7.25	9.96	12.62	16.37	21.46

Cash Flow

Operations Year	0	1	5	10	15	20	25	29
Equity IRR Calculation								
PAT (Rs. million)		0.77	4.68	7.25	9.96	12.62	16.37	21.46
Depreciation (Rs. million)		1.15	2.31	2.31	2.31	2.31	2.31	2.31
Total cash inflows (Rs. million)	-	1.92	6.99	9.55	12.27	14.93	18.68	23.77
Share capital (Rs. million)	32.87	-						
Loan repayment (Rs. million)	-	-	5.48	-				
Total cash outflows (Rs. million)	32.87	-	5.48	-	-	-	-	-
Net cash inflows	(32.87)	1.92	1.51	9.55	12.27	14.93	18.68	23.77
Equity IRR	15.00%							
Project IRR Calculation								
EBITDA (Rs. million)		4.25	9.94	12.85	17.40	21.65	27.38	35.01
Capex (Rs. million)	57.59	38.39						
IDC (Rs. million)	0.84	1.49						
Net cash inflows - pre-tax (Rs. million)	(56.75)	(32.65)	9.94	12.85	17.40	21.65	27.38	35.01
Tax (Rs. million)		0.19	1.17	3.30	5.13	6.72	8.70	11.24
Net cash inflows - post-tax (Rs. million)	(56.75)	(32.84)	8.77	9.55	12.27	14.93	18.68	23.77
Project IRR (pre-tax)	13.04%							
Project IRR (post-tax)	10.49%							
DSCR Calculation								
PAT (Rs. million)		0.77	4.68	7.25	9.96	12.62	16.37	21.46
Depreciation (Rs. million)		1.15	2.31	2.31	2.31	2.31	2.31	2.31

Interest (Rs. million)		2.14	1.78	-	-	-	-	-
Total funds flow from project (Rs. million)		4.06	8.77	9.55	12.27	14.93	18.68	23.77
Loan repayment (Rs. million)		-	5.48	-	-	-	-	-
Interest (Rs. million)		2.14	1.78	-	-	-	-	-
Debt service requirement (Rs. million)		2.14	7.26	-	-	-	-	-
DSCR		1.90	1.21					
Average DSCR	1.25							
Min. DSCR	0.85							

SITE 3: LAXMI PARKING (KHANJAR GALLI)**Profit and Loss Account (Rs. Million)**

Operations Year	1	5	10	15	20	25	29
% Operational	50%	100%	100%	100%	100%	100%	100%
Escalation Factor	1.00	1.22	1.55	1.98	2.53	3.23	3.92
Income							
Average parking fee (Rs. per parking duration)	30	35	45	60	75	95	120
Parking revenue	2.46	5.75	7.39	9.86	12.32	15.60	19.71
Advertisement charges	0.18	0.44	0.56	0.71	0.91	1.16	1.41
Total income	2.64	6.19	7.95	10.57	13.23	16.76	21.12
Operating Expenditure							
Administration cost	0.38	0.91	1.16	1.48	1.90	2.42	2.94
Routine maintenance expense	0.17	0.41	0.52	0.67	0.85	1.08	1.32
Periodic maintenance expense							
Manpower cost	0.50	1.23	1.56	2.00	2.55	3.25	3.95
Power cost	0.11	0.27	0.34	0.43	0.55	0.71	0.86
Insurance	0.03	0.03	0.02	0.02	0.01	0.00	-
Lease rental	-	-	-	-	-	-	-
Total operating expenditure	1.19	2.84	3.61	4.60	5.86	7.46	9.07

EBITDA	1.45	3.35	4.34	5.97	7.37	9.30	12.05
Depreciation	0.39	0.79	0.79	0.79	0.79	0.79	0.79
Interest	0.73	0.61	-	-	-	-	-
Profit Before Tax (PBT)	0.33	1.95	3.55	5.18	6.59	8.51	11.27
Tax	0.07	0.38	1.11	1.76	2.29	2.96	3.87
Profit After Tax (PAT)	0.26	1.57	2.44	3.42	4.30	5.56	7.40

Cash Flow

Operations Year	0	1	5	10	15	20	25	29
Equity IRR Calculation								
PAT (Rs. million)		0.26	1.57	2.44	3.42	4.30	5.56	7.40
Depreciation (Rs. million)		0.39	0.79	0.79	0.79	0.79	0.79	0.79
Total cash inflows (Rs. million)	-	0.66	2.35	3.23	4.21	5.08	6.34	8.18
Share capital (Rs. million)	11.22	-						
Loan repayment (Rs. million)		-	1.87	-				
Total cash outflows (Rs. million)	11.22	-	1.87	-	-	-	-	-
Net cash inflows	(11.22)	0.66	0.48	3.23	4.21	5.08	6.34	8.18
Equity IRR	15.00%							
Project IRR Calculation								
EBITDA (Rs. million)		1.45	3.35	4.34	5.97	7.37	9.30	12.05
Capex (Rs. million)	20.17	13.45						
IDC (Rs. million)	0.29	0.51						
Net cash inflows - pre-tax (Rs. million)	(19.88)	(11.48)	3.35	4.34	5.97	7.37	9.30	12.05
Tax (Rs. million)		0.07	0.38	1.11	1.76	2.29	2.96	3.87
Net cash inflows - post-tax (Rs. million)	(19.88)	(11.55)	2.96	3.23	4.21	5.08	6.34	8.18
Project IRR (pre-tax)	12.75%							

Project IRR (post-tax)	10.21%							
DSCR Calculation								
PAT (Rs. million)		0.26	1.57	2.44	3.42	4.30	5.56	7.40
Depreciation (Rs. million)		0.39	0.79	0.79	0.79	0.79	0.79	0.79
Interest (Rs. million)		0.73	0.61	-	-	-	-	-
Total funds flow from project (Rs. million)		1.39	2.96	3.23	4.21	5.08	6.34	8.18
Loan repayment (Rs. million)		-	1.87	-				
Interest (Rs. million)		0.73	0.61	-	-	-	-	-
Debt service requirement (Rs. million)		0.73	2.48	-	-	-	-	-
DSCR		1.90	1.20					
Average DSCR	1.25							
Min. DSCR	0.84							

Annexure D: Sensitivity Analysis

SITE 1: RAMDEV GALLI

Civil Construction Cost	80%	90%	100%	110%	120%
Equity IRR	19.14%	16.72%	15.00%	13.56%	12.22%
Project IRR	12.76%	11.32%	10.21%	9.26%	8.37%
Average DSCR	1.58	1.37	1.25	1.15	1.05
Minimum DSCR	1.12	0.93	0.84	0.77	0.71

Revenue	80%	90%	100%	110%	120%
Equity IRR	9.71%	12.44%	15.00%	17.37%	19.99%
Project IRR	6.60%	8.52%	10.21%	11.73%	13.27%
Average DSCR	0.86	1.06	1.25	1.42	1.64
Minimum DSCR	0.57	0.72	0.84	0.97	1.16

Operating Expenditure	80%	90%	100%	110%	120%
Equity IRR	17.22%	16.11%	15.00%	13.86%	12.70%
Project IRR	11.64%	10.94%	10.21%	9.46%	8.67%
Average DSCR	1.41	1.33	1.25	1.17	1.09
Minimum DSCR	0.96	0.90	0.84	0.78	0.72

SITE 2: SARDAR GROUND

Civil Construction Cost	80%	90%	100%	110%	120%
Equity IRR	19.13%	16.72%	15.00%	13.57%	12.23%
Project IRR	13.06%	11.61%	10.49%	9.52%	8.62%
Average DSCR	1.58	1.37	1.25	1.15	1.05
Minimum DSCR	1.13	0.94	0.85	0.78	0.72

Revenue	80%	90%	100%	110%	120%
Equity IRR	10.92%	13.10%	15.00%	16.85%	18.85%
Project IRR	7.70%	9.20%	10.49%	11.70%	12.92%
Average DSCR	0.95	1.12	1.25	1.38	1.53
Minimum DSCR	0.66	0.76	0.85	0.95	1.13

Operating Expenditure	80%	90%	100%	110%	120%
Equity IRR	16.18%	15.59%	15.00%	14.40%	13.80%
Project IRR	11.26%	10.88%	10.49%	10.08%	9.67%
Average DSCR	1.33	1.29	1.25	1.21	1.17
Minimum DSCR	0.92	0.89	0.85	0.82	0.79

SITE 3: LAXMI PARKING (KHANJAR GALLI)

Civil Construction Cost	80%	90%	100%	110%	120%
Equity IRR	19.14%	16.72%	15.00%	13.56%	12.22%
Project IRR	12.76%	11.32%	10.21%	9.26%	8.37%
Average DSCR	1.58	1.37	1.25	1.15	1.05
Minimum DSCR	1.12	0.93	0.84	0.77	0.71

Revenue	80%	90%	100%	110%	120%
Equity IRR	9.71%	12.44%	15.00%	17.37%	19.99%
Project IRR	6.60%	8.52%	10.21%	11.73%	13.27%
Average DSCR	0.86	1.06	1.25	1.42	1.64
Minimum DSCR	0.57	0.72	0.84	0.97	1.16

Operating Expenditure	80%	90%	100%	110%	120%
Equity IRR	17.22%	16.11%	15.00%	13.86%	12.70%
Project IRR	11.64%	10.94%	10.21%	9.46%	8.67%
Average DSCR	1.41	1.33	1.25	1.17	1.09
Minimum DSCR	0.96	0.90	0.84	0.78	0.72

Annexure E: Terms of Reference for Engaging Technical Consultant

1. Background

Although there are dedicated parking lots available in most Indian cities, the capacity of these parking lots is usually not sufficient to cater to present demand. In the absence of adequate parking facilities, the vehicles are parked on the side of the street leading to major bottlenecks in the smooth flow of traffic. In addition, high population density, large number of pavement hawkers, sidewalk encroachments, heterogeneous nature of traffic and commercial area development along all the major roads tend to compound the problem of congestion on the main as well as internal roads of these cities.

A multi-level car parking (MLCP) is a building (or part thereof) which is designed specifically to accommodate automobile parking and which is structured to have a number of floors or levels on each of which parking takes place. It is essentially a stacked parking lot. It involves an application of multiple access and exit systems to avoid traffic congestion in and out. MLCP is a strategic way of increasing the Equivalent Car Space (ECS) at a parking site. Off-street or on-street parking does not enable optimum utilization of the land and leads to a capacity shortage in certain cases. However, a MLCP can accommodate many more vehicles than a land parking lot can depending on the number of floors, development control norms etc. A MLCP also offers enhanced comfort and security.

To identify and manage the parking needs for major commercial areas of Belgaum City, the Directorate of Urban Land Transport, Government of Karnataka has planned to develop such MLCPs on Public Private Partnership (PPP). For this purpose, DULT intends to employ technical knowledge to assist in evaluating the feasibility of developing such infrastructure.

2. Study Area

DULT has identified the following areas with major parking inefficiencies and high levels of parking demand where MLCPs can be set up on PPP basis:

- a) **Ramdev Galli** - One of the major locations for development of MLCP is at Ramdev Galli which is located at the central core of the city. Ramdev Galli parking would cater to the parking needs of Khade Bazaar and Bapat Galli areas, which is the main commercial hub of Belgaum.
- b) **Sardar Ground** - The proposed site at 'Sardar Ground' is the playground of Sardar High School. It is located along the College Road and is also surrounded by a few commercial hubs nearby. During the college hours, students, faculty members and general public face major parking problems due to lack of parking area in comparison to the number of colleges, shops and offices located nearby.
- c) **Laxmi Parking (Khanjar Galli)** - The Laxmi Parking site is at Khanjar Galli which is located at the City Centre. Parking demand at Khanjar Galli is driven by the vehicles of

shop owners and shoppers. Visitors and employees of the Government offices located nearby also contribute to the demand.

3. Objective of the Study

The objective of the study is to identify the existing and future parking demand at the indicated sites and preparing a feasibility report for setting up MLCPs based on encompassing engineering, social, environmental, financial and economic viability analysis. Based on the above it would be followed by architectural and engineering layout and design the MLCPs along with all related engineering drawings, technical schedules and cost estimates.

4. Scope of Work

The work for the Consultants will comprise of three distinctive phases as described below:

- **Phase 1:** Market Assessment and Techno-economic feasibility Study for MLCPs
- **Phase 2:** Engineering Design & Documentation
- **Phase 3:** Technical assistance during the transaction phase

The Detailed scope of consultancy services shall thus cover the following major tasks:

1. The consultant shall conduct a field review of the proposed sites to identify the existing on street and off street parking locations in the vicinity of each site. This would include a parking survey to identify the number of parking spaces, its utilization and demand at each site.
2. The consultant shall estimate the level of parking violations and revenue lost (as it is not collected) due to the same. They shall identify the characteristics of parking with an opinion survey (willingness to pay).
3. The consultants shall review of Parking Policy for the Belgaum City Corporation, and Comprehensive Traffic and Transportation Plan for the city of Belgaum with respect to parking.
4. The Consultant shall make an assessment of the market demand for car parking facilities for a period of 10 (ten) years, 20 (twenty) years and 30 (thirty) years respectively based on analysis of existing market trends and socio-economic influencing factors. The Consultant shall submit a Report on the market demand analysis. The end result of this stage will be identification of the facilities to be proposed for the project.
5. The Consultant would prepare the architectural layout, design documentation, engineering drawings, technical schedules and item-wise cost estimates for all facilities envisaged.

6. To develop above project documents, the Consultant shall conduct all relevant site investigation and evaluation based on research necessary. This shall include but not be limited to topographic surveys, geotechnical research, pavement analysis, hydraulic and hydrological studies, drainage investigations, environmental research, and assessments of all existing conditions and the applicable development control norms.
7. The Consultant shall also provide the necessary details for all electrical systems necessary for the proposed facilities along with drawings which will show the development of panels and circuits for all electrical systems. Electrical elements comprise all items associated with electrical service and distribution, including but not limited to, conduits, telephone service, fire alarm systems, cable, emergency back-up power, communications, lighting.
8. The Consultant shall design and prepare drawings, details, specifications and calculations for all mechanical improvements and systems which shall include, but not limited to, all items associated with the plumbing, water supply, waste water disposal, garage, storm water collection, and ventilation.
9. The Consultant shall undertake environment impact assessment of the Project as per provisions of the Applicable Laws on environment protection and identify a package of measures to reduce/eliminate the adverse impact identified during the assessment. An environmental impact assessment report and environmental management plan shall be prepared based on such assessment. The management plan shall include project specific mitigation and monitoring measures for identified impacts as well as management and monitoring plans to address them.
10. The Consultant shall provide assistance to the Transaction Consultant during preparation of transaction documents in terms technical schedules, cost estimates, layouts. It shall also attend pre-bid meetings with the developers, answer questions related to the design, and provide technical information to the bidders and prepare contract documentation for addenda, if any.

5. Study Deliverables

The study is to be completed within 26 Weeks excluding assistance in bid process. The deliverables are listed below. The consultant may also submit working papers for comment as required.

Deliverable	Submission Date (max time in weeks)	No. of Copies (Hard copies)
Inception Report and Detailed Work Plan	2	3
Market Assessment Report and Proposed Facilities Layout	10	3

Deliverable	Submission Date (max time in weeks)	No. of Copies (Hard copies)
Preliminary Design Report along with all engineering drawings & design documentation	15	5
Environment Impact Assessment & Management Plan Report	20	5
Final Design Report with all engineering drawings & design documentation	26	10
Assistance in bid process	-	

A soft copy of all reports including database material (in Word /Excel /PPT/Dwg – editable format) shall be submitted with each of the above deliverables.

6. Report Format and Submission

Reports shall be submitted in an easily readable format with data relevant to each chapter consultants shall take at most care to submit a report without spelling mistakes and grammatical errors. The report shall have proper cross referencing and numbering of subtitles in every chapter. The report shall have a neat index with correct page numbers. The consultants shall submit draft copies of every report to DULT for its initial comments before taking it to the stakeholder's consultation meetings. The consultants shall then incorporate all the comments of DULT and stakeholders and submit a fair copy of the report as per numbers mentioned in the RFP for all the reports.

Report formats shall be proposed in the Inception presentation and after agreement with the client, subsequent reports shall be submitted in the agreed format.

7. Payment Schedule

Payment shall be made according to the following Schedule, which is based on the submission of deliverables.

Submission/Acceptance of	Payment as Percentage of Total Payable Fee
Inception Report and Detailed Work Plan	10%

Submission/Acceptance of	Payment as Percentage of Total Payable Fee
Market Assessment Report and Proposed Facilities Layout	15%
Preliminary Design Report along with all engineering drawings & design documentation	25%
Environment Impact Assessment & Management Plan Report	15%
Final Design Report with all engineering drawings & design documentation	25%
Assistance in bid process	10%

8. Information on Firm and Proposed Staffing

It is also envisaged that the study will be undertaken by Indian/International consultants having a registered office in India and demonstrated experience of having worked with government agencies having expertise and experience in similar projects.

9. Composition of the Consultants Team

The consultants shall provide details of relevant experience in carrying out similar work along with a copy of client certificates/testimonials. CVs for proposed staff should be included with the Technical Proposal. Staff should have experience in the following disciplines:

- Team Leader - 15 years of relevant experience
- Transport Planner with 10 years of relevant experience
- Civil/ Structural Design Engineer with 10 years of building structural design experience
- Environmental Specialist with 10 years of relevant experience

In the selection of consultants much importance will be attached to the experience and quality of key members of the proposed consulting team and in particular, of the person proposed to lead it in the field. The proposal should identify the team leader, who is to be available to the project full time, and other key members of the team, indicating length of time for which each is intended to be assigned to the study.

The team leader, in addition to being technically authoritative, must be fully able to fulfill the responsibility of managing all the staff working on the study. Responsibility for study findings will rest with the consultants.

10. Study Duration

The study is to be conducted within overall period of 26 weeks (6 Months). This does not include the assistance to be provided during the transaction process.

11. Responsibilities for Study Findings and Products

Responsibility for study findings will rest with the consultants. The consultant study team leader will be responsible for managing all the staff working on the study.

All data accomplished by the consultants during the Study shall be the property of the client. The data collected, computer software purchased for and / or modified, during the course of the consultancy assignment should be handed over to employer by the consultant free of cost. Similarly the consultant shall hand over raw data on CDs used by them for data storage in a suitable database format. Every copy of the report will be submitted in soft copies also.

All the study reports shall be prepared in English and shall use SI units in mathematical, engineering and statistical data analysis.

12. Employer Support

Consultants will be provided essential background documents, available (base maps / DP). Necessary information for identification and delineating various areas / zones and road network in the study area will be made available for the consultants. The designated officer would liaise with other organizations to facilitate surveys and data from secondary sources. Assistance shall be provided in establishing contact with respective agencies.

13. Study Task Manager

An officer will be designated, who will act as Liaison Officer between the consultant and various agencies and organizations. The consultants shall closely liaise with him/her at all stages and all matters pertaining to this consultancy assignment.

Annexure F: Terms of Reference for Engaging Transaction Advisor

1. Objective of the Consultancy Services

Directorate of Urban Land Transport (the “Authority”) is engaged in the enhancement of the transport infrastructure facilities in major cities of Karnataka. As part of this endeavour, the Authority has decided to undertake the development of the subject project on PPP mode. The primary objective of the services is to assist the Authority in selecting a concessionaire for the same.

2. Scope of Services

The scope of services shall include:

- (i) assisting the Authority in the entire bidding process up to the signing of the concession agreement;
- (ii) evaluation of the strategic objectives of the Authority in relation to the Project and advising on the commercial and capital structuring, especially with reference to Applicable Laws;
- (iii) review cost estimates contained in the Feasibility / Detailed Project Report (FR/DPR);
- (iv) prepare a reasonable estimation of the likely revenues;
- (v) assisting the Authority in identification of project risks and in allocation of the same in an efficient and economic manner;
- (vi) identification and quantification of estimated financial impact of the Project on government resources;
- (vii) development of various possible alternatives for revenue maximisation and preparation of revenue model for the project;
- (viii) advising on tax-related issues arising out of the Project structuring;
- (ix) Prepare the draft Concession Agreement;
- (x) preparation of a consolidated list of approvals/consents/clearances required from Government Instrumentalities;
- (xi) assist in preparation of Bid documents
- (xii) Assist in invitation and evaluation of bids.
- (xiii) Assist the Authority in negotiations with the bidders till signing of the agreement
- (xiv) Assist the Authority till financial closure

In making its projections, recommendations and Reports, the Consultant shall identify the underlying assumptions and reach an agreement with the Authority in relation thereto. The services to be rendered by the consultants are briefly explained hereunder:

A) Transaction Adviser

The Consultant shall be responsible for review of the financial parameters and examination of the viability of the Project. The Consultant will render advisory services for preparation of bidding documents and in conducting the bidding process for selection

of the concessionaire for the project. The Consultant shall also maintain, update and disseminate the necessary data and information related to the Project and the bid process. During interaction with the bidders and stakeholders, the Consultant shall assist the Authority in responding to all queries satisfactorily and within the specified time. The Consultant shall render advisory services up till Financial Closure by the selected Concessionaire.

B) Review of costs

The FR/DPR will indicate the nature and extent of infrastructure, facilities and services to be provided by the Concessionaire. The Consultant shall review and comment on the cost estimates contained in the FR/DPR. He shall ensure that appropriate provisions have been made for physical and price contingencies, financing costs, interest during construction, etc. The Consultant shall also make a broad assessment of O&M expenses to be incurred by the Concessionaire during the entire Concession period based on appropriate standards.

C) Estimation of revenue

The Consultant shall evaluate the available data and information with a view to prepare a reasonable estimation of the likely revenues of the concessionaire from the charges to be collected from the Project and from other sources of revenue, if any. It shall propose various options for optimising such revenues.

D) Development of Financial Model

The Consultant shall identify and quantify all costs, expenses and revenues of the Project, and shall prepare cash-flow statements for an appropriate concession period. Based on the above, the Consultant shall prepare the Financial Model which will indicate the possible capital structure, likely sources of financing, the costs of financing, the cash flow, debt service, return on investment etc. This would also include sensitivity analysis in relation to the critical parameters of the Financial Model.

E) Impact of Project on Government Resources

The Consultant shall also identify and quantify the estimated financial impact of the Project on the resources of the Central / State Governments and the Project Authority.

F) Project Appraisal

Based on the above analysis, the Consultant shall prepare an Appraisal Report for the Project outlining the salient features of the Project, its financial viability and its social and economic benefits. The Consultant shall work out the financial viability of the Project with a view to estimating the likely IRR over the entire concession period. The consultant would identify and suitably allocate the risk factors affecting the Project.

G) Finalization of Project Structure:

The consultant shall prepare a final project structure which will be capable of achieving sustainable operational and financial viability, thereby balancing the risks for the Authority and viability for the Concessionaire. Various commercial and legal options for Project structuring shall be examined to recommend a suitable PPP model and implementation structure. The analysis should include feedback on potential acceptability of the PPP structure by developers and lenders.

H) Drafting a Concession Agreement

The Consultant shall prepare a draft Concession Agreement (CA) based on Department of Economic Affairs, Ministry of Finance, Government of India guidelines.

I) Preparation of Bid Documents

The Consultant shall assist in preparing the bid document including Request for Proposal based on the Model RFP published by the Planning Commission, available at www.infrastructure.gov.in.

J) Assistance in the Bid Process

The Consultant shall assist the Authority in the bid process for selection of the Concessionaire from among the Bidders. This will primarily relate to participation in pre-bid meeting and answering questions or issuing clarifications with the approval of the Authority. The Consultant shall also assist the Authority in engaging with the bidders on different aspects of the Project such as its assets, the process of the transaction, the Financial Model and the structure of the Project. It will also assist the Authority in preparing internal notes and projections for securing governmental approvals, if any.

K) Assistance in selection of the preferred Bidder

The Authority intends to select the preferred bidder on the basis of the Proposals received from pre-qualified bidders. Only financial proposals will be invited as part of the Bidding Process. The Consultant shall also assist the Authority in evaluating the financial proposals and in engaging with the selected bidder till execution of the Concession Agreement and financial closure.

3. Deliverables

In pursuance of this TOR, the Consultant shall undertake/deliver the following deliverables (the "Deliverables") during the course of this Consultancy. Each deliverable shall include an executive summary, analyses, assumptions, results of computations, tables, charts, recommendations, and such other contents that generally comprise deliverables for similar consultancy work by way of best practices. The deliverables shall include:

S. No.	Deliverable	Submission Date (max time in weeks)
1	Inception Report	2
2	Draft Appraisal Report	6
3	Final Appraisal Report	8
4	Submission of Draft Bidding Documents	12
5	Assistance in conducting the RFQ process	14
6	Evaluation Report of the Bids	20
7	Signing of the Concession Agreement	22
8	Financial Closure by the Concessionaire	32

4. Report format and submission:

Reports shall be submitted in an easily readable format with data relevant to each chapter consultants shall take at most care to submit a report without spelling mistakes and grammatical errors. The report shall have proper cross referencing and numbering of subtitles in every chapter. The report shall have a neat index with correct page numbers. The consultants shall submit draft copies of every report to DULT for its initial comments before taking it to the stakeholder's consultation meetings. The consultants shall then incorporate all the comments of DULT and submit a fair copy of the report.

5. Payment Schedule

Payment shall be made according to the following Schedule, which is based on the submission of deliverables.

S. No.	Deliverable	Payment as Percentage of Total Payable Fee
1	Inception Report	5%
2	Draft Appraisal Report	10%
3	Final Appraisal Report	25%
4	Submission of Draft Bidding Documents	15%
5	Assistance in conducting the RFQ process	5%
6	Evaluation Report of the Bids	15%
7	Signing of the Concession Agreement	20%
8	Financial Closure by the Concessionaire	5%

6. INFORMATION ON FIRM AND PROPOSED STAFFING

It is envisaged that the study will be undertaken by Transaction Advisers empanelled with the Department of Economic Affairs, Ministry of Finance, Government of India. The consultants must have demonstrated experience of having worked with Karnataka government agencies having expertise and experience in similar assignments.

7. Composition of the Consultants Team

The consultants shall provide details of relevant experience in carrying out similar work along with a copy of client certificates/testimonials. CVs for proposed staff should be included with the Technical Proposal. Staff should have experience in the following disciplines:

- Team Leader (15 Years' relevant experience)
- PPP/Contract Specialist (MBA with 10 Years of relevant experience)
- Technical Expert (Computer Engineer with 10 Years of relevant experience)
- Financial Specialist (MBA Finance/CA with 5 Years of relevant experience)
- Legal Specialist (LLB with 5 Years of relevant experience))

8. Data Produced

All data accomplished by the consultants during the Study shall be the property of the client. The data collected, computer software purchased for and / or modified, during the course of the consultancy assignment should be handed over to employer by the consultant free of cost. Similarly the consultant shall hand over raw data on CDs used by them for data storage in a suitable database format. Every copy of the report will be submitted in soft copies also.

9. Employer Support

Consultants will be provided essential background documents available including FR/DPR. The designated officer would liason with other organizations to facilitate surveys and data from secondary sources. Assistance shall be provided in establishing contact with respective agencies and prospective bidders. The Authority shall bear the cost of taking out advertisement(s), hosting pre-bid conference etc.



Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see www.deloitte.com/about for a detailed description of the legal structure of Deloitte Touche Tohmatsu Limited and its member firms.

This document and the information contained herein have been prepared by Deloitte Touche Tohmatsu Indian Private Limited (DTTIPL) for the Infrastructure Development Department, Government of Karnataka and Directorate of Urban Land Transport, Government of Karnataka. Contents of this document should not be copied or reproduced by any third party or otherwise quoted or referred to, in whole or in part, without the prior permission of DTTIPL in writing. DTTIPL disclaims any responsibility for any loss or damage suffered by any entity by taking reliance of this document. Furthermore DTTIPL will not be bound to discuss, explain or reply to queries raised by any agency other than the intended recipients of this document.

The conclusions drawn and recommendations made are based on the information available at the time of writing this document.

DTTIPL does not accept any liability or responsibility for the accuracy, reasonableness or completeness of, or for any errors, omissions or misstatements, negligent or otherwise and does not make any representation or warranty, express or implied, with respect to the information contained in this document. The information contained in this document is selective and is subject to updating, expansion, revision and amendment. It does not, and does not purport to, contain all the information that a recipient may require. Further this is not an audit report and no reliance should be based on this report for the purposes of audit.

©2012 Deloitte Touche Tohmatsu India Private Limited. Member of Deloitte Touche Tohmatsu Limited